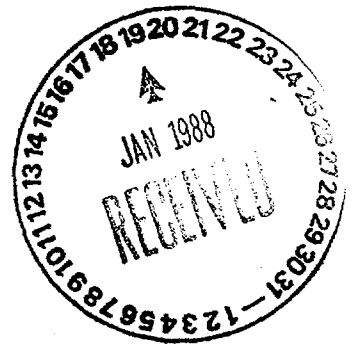




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RESPONSE

OF

UNITED PARK CITY MINES COMPANY

TO

QUESTIONS 10 THROUGH 19

OF

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY'S

NOVEMBER 23, 1987,

REQUEST FOR INFORMATION

Volume 2

Submitted: January 15, 1988

United Park City Mines Company reserves the right to supplement this response as additional information and documents become available.

United Park City Mines Company

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United Park City Mines Company

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QUESTION 15

Please provide any existing technical or analytical information United Park City Mines may have about the site, including but not limited to data and documents (except for EPA Analytical Results Report) related to soil, water (ground or surface), geology, hydrogeology or air quality on and about the site.

RESPONSE

The following is a list of the available technical or analytical information United Park City Mines Company has about the Site. This information, in some instances, has been generated by Lessees or operators of United Park City Mines Company's property or their consultants. United Park City Mines Company does not necessarily agree with some of the findings of some of the consultants and reserves the right to comment upon those findings at a future time.

1. Letter from United Park City Mines Company, to Ecology and Environment, Inc. dated July 18, 1985 concerning the depth of the ground water monitoring wells in toe of tailings dam and amount of tailings in the pond. Exhibit 15-A.
2. Analytical results of sample splits given to United Park City Mines Company by Ecology and Environment, Inc. Samples were taken during the summer of 1985. Exhibit 15-B.
3. EPA Site Inspection Report dated 8/27/85 and cover letter from Kelcey Y. Land dated 1/06/86. Exhibit 15-C.
4. EPA Air Sampling Plan for Richardson Flat Tailings Park City, Utah dated 6/15/86. Exhibit 15-D.
5. Site Inspection Report submitted to EPA by Utah State Division of Environmental Health, Bureau of Solid and Hasardous Waste dated 8/30/84. Exhibit 15-E.
6. Report On Tailings Pond Investigation Near Park City, Utah For Noranda Mining Inc. by Dames and Moore dated November 12, 1980. Exhibit 10-D

Continued on next page



Response of United Park City Mines Company, 01/15/88  
Question 15 continued

7. Report Of Embankment And Dike Design Requirements Proposed Tailings Pond Development Near Park City, Utah for Park City Ventures Corporation by Dames and Moore dated March 8, 1974. Exhibit 10-C.
8. Report Of Ground Water Monitoring And Seepage Study Tailings Pond Development Near Park City, Utah For Park City Ventures by Dames and Moore dated 12/6/73. Exhibit 10-A.
9. Computer printout of the section of United Park City Mines Company's Water Quality Data Base that contains information concerning NPDES monitoring of the ground water wells, Silver Creek and the Pond diversion ditch. This contains only the information generated by United Park City Mines Company and not information generated by Park City Ventures or Noranda Mining Inc. Exhibit 15-F.
10. An assay report on a selective grab sample of tailings taken from the Site to see if the mill tailings met requirements for smelter flux. No answer has yet been recieved from the smelter on the assay report. Exhibit 15-G.
11. Memorandum by the Bureau of Environmental Health, Division Of Health, State Of Utah dated May 2, 1973 concerning a site inspection to the proposed location for the Park City Municipal Landfill. This memo discussed the results of same trenching at the Landfill site. Exhibit 15-H.
12. Letter from Park City Municipal Corporation to the Utah State Department of Health and Sanitation dated April 10, 1973 concerning the Landfill, its operation, ground water and surface water drainage. Exhibit 15-I.
13. Geological Reconnaissance Of The Proposed Park City Summit County Sanitary Landfill Site, a Utah Geological and Mineralogical Survey Publication number 69 dated 9/27/72. Exhibit 15-J.
14. United Park City Mines Company internal memorandum

Continued on next page

Response of United Park City Mines Company, 1/14/88  
Question 15 continued

dated 6/4/85 entitled "Park City Municipal Corporation Noncompliance With Certain Terms And Conditions Regarding The Operation Of Their Sanitary Landfill". This memo contains information concerning materials in and around the Landfill. Exhibit 15-K.

15. United Park City Mines Company internal memorandum dated June 11, 1985 concerning the reclamation of the Park City Landfill. Exhibit 15-L.
16. United Park City Mines Company internal memorandum dated July 10, 1985 concerning Prospector Square Mill Tailings disposal in the Park City Landfill. Exhibit 15-M.
17. A topographic map of the site constructed by Noranda Mining, Inc. in conjunction with their study of the pond. This is the most up-to-date topography available of the site. It was flown in 1980 and has not changed significantly since that time. Exhibit 15-N.
18. United Park City Mines Company internal memorandum dated October 9, 1985 regarding groundwater monitoring wells around Landfill. Exhibit 15-O.
19. United Park City Mines Company letter to Park City Municipal Corporation dated December 22, 1985 regarding Landfill Reclamation. Exhibit 15-P.

United Park City Mines Company reserves the right to supplement this response as additional information and documents become available.



309 KEARNS BUILDING  
SALT LAKE CITY, UTAH 84101

July 18, 1985

Mr. Jeffrey A. Holcomb  
Ecology and Environment, Inc.  
4105 East Florida Avenue  
Suite 350  
Denver, Colorado 80232

Dear Mr. Holcomb:

As per our telephone conversation of July 12, 1985, I have determined the present depths of each of the monitoring wells located along the toe of the containment dam for the tailings pond at Richardson Flat. The information is on the attached map.

As I mentioned on the telephone, it would be rather difficult to determine the exact amount of tailings in the Richardson Flat area. The area was used by various mining companies prior to the incorporation of United Park City Mines Company in 1953. United Park has not operated a mill in the area at any time since its incorporation. The most recent use of the area for tailings disposal was during the period of time from 1975 to 1981. During this time United Park had all of its mining properties leased to either Park City Ventures or Noranda Mining Incorporated. These companies constructed and operated milling facilities on United Park's property.

After a review of Park City Ventures' and Noranda's production data, I found that it would take a very detailed study of a variety of mining and milling data to determine, as accurately as possible, the amount of tailings disposed of by these companies.

As I mentioned an approximation of the total amount of tailings in the area could be made by doing some very general surface mapping and volume calculations. If you decide you would like to do this, let me know and I will assist you all that I can.

Mr. Jeffrey A. Holcomb  
Page 2

July 18, 1985

As of this writing I have not heard from your field crews regarding the drilling in the area. I am still awaiting any word as to the start of that project.

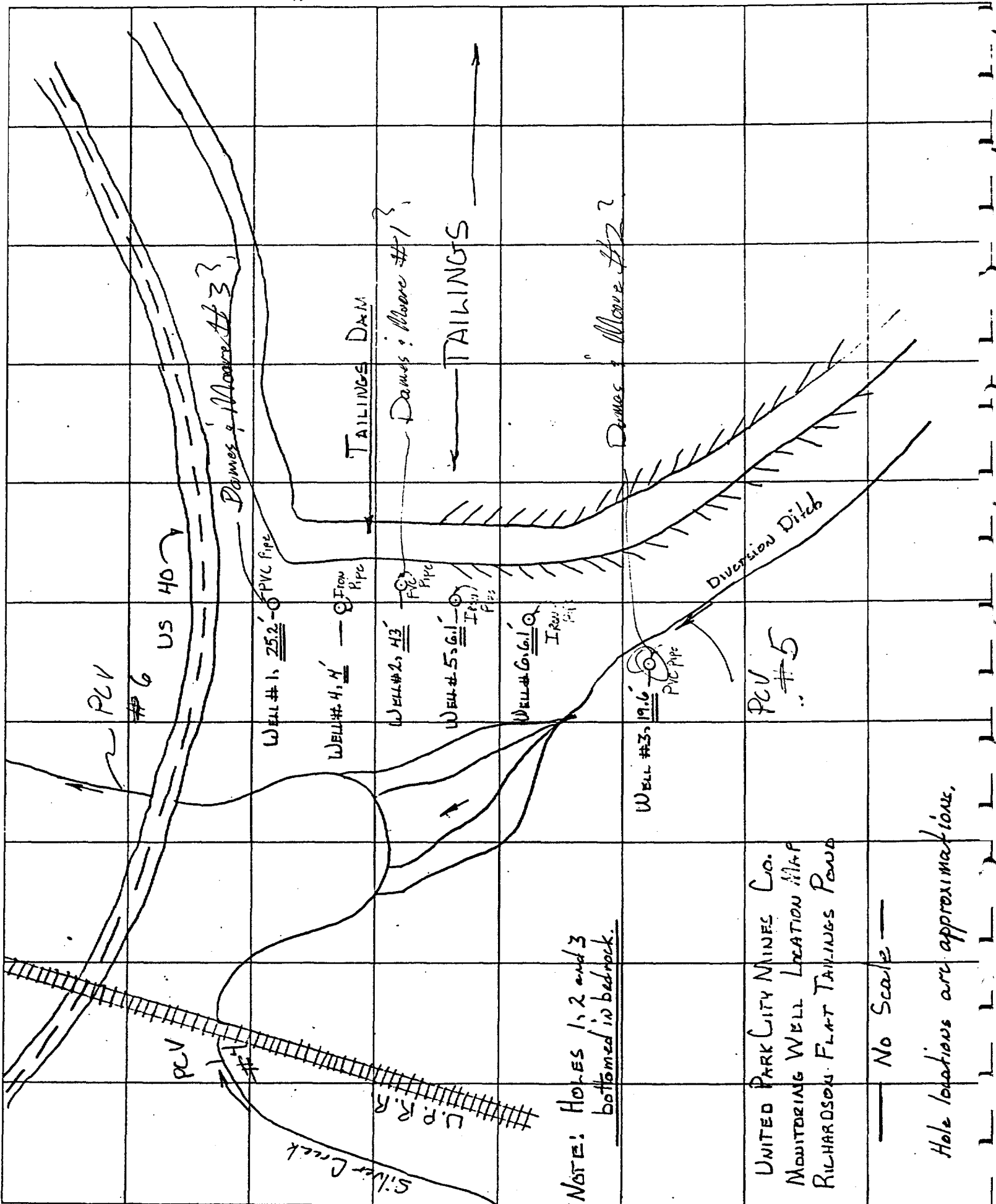
Sincerely,



Kerry C. Gee  
Geologist/Engineer

KCG:jl

cc: E. L. Osika, Jr.  
Reed V. Clawson  
S. Hull



**AMERICAN  
ENVIRONMENTAL  
CONSULTANTS**

October 10, 1985

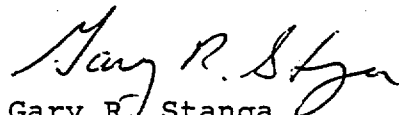
Mr. Kerry Gee  
United Park City Mines  
309 Kearns Building  
Salt Lake City, Utah 84101

Dear Sir:

Please find attached the results for the splits of water and tailings samples taken in conjunction with the EPA's study. The samples were digested in a nitric perchloric acid mixture and analyzed for the parameters listed on the laboratory services request form.

If you have any questions concerning the attached data, please let me know.

Very truly yours,



Gary R. Stanga  
Manager of Environmental  
Laboratory Services

GRS/lb  
Attach.

American Environmental Consultants  
Division of ASARCO Incorporated  
Salt Lake City, Utah

COMPANY United Park City Mines  
Soil & Vegetation Sample Results

DATE RECEIVED 8/ 8/85  
DATE REPORTED 10/ 8/85

LAB #	SAMPLE DESCRIPTION	1985 SAMPLE DATE	Ag ppm	Al ppm	As ppm	Ba ppm	Be ppm
1046	RT-1 5- 7 Feet	8/ 1	1.5	27000.	6.0	150.	<5.0
1047	RT-1 10-12 Feet	8/ 1	1.0	36500.	<2.5	160.	<5.0
1048	RT-2 1- 3 Feet	8/ 2	20.	2250.	435.	40.	<5.0
1049	RT-2 3- 8 Feet	8/ 2	23.	1350.	546.	30.	<5.0
1050	RT-2 12-18 Feet	8/ 2	50.	2550.	471.	90.	<5.0
1051	RFTP 10-11 Feet	8/ 2	60.	3400.	576.	75.	<5.0
1052	RFTP 11-12 Feet	8/ 2	14.	2450.	312.	75.	<5.0

LAB #	SAMPLE DESCRIPTION	1985 SAMPLE DATE	CN- ppm	Ca ppm	Cd ppm	Co ppm	Cr ppm
1046	RT-1 5- 7 Feet	8/ 1	<.20	5625.	<.50	30.	65.
1047	RT-1 10-12 Feet	8/ 1	<.20	6000.	<.50	25.	75.
1048	RT-2 1- 3 Feet	8/ 2		82500.	35.	33.	45.
1049	RT-2 3- 8 Feet	8/ 2		83750.	208.	29.	35.
1050	RT-2 12-18 Feet	8/ 2		42500.	92.	28.	50.
1051	RFTP 10-11 Feet	8/ 2		43750.	122.	31.	60.
1052	RFTP 11-12 Feet	8/ 2		87500.	79.	32.	40.

American Environmental Consultants  
Division of ASARCO Incorporated  
Salt Lake City, Utah

COMPANY United Park City Mines  
Soil & Vegetation Sample Results

DATE RECEIVED 8/ 8/85  
DATE REPORTED 10/ 8/85

LAB #	SAMPLE DESCRIPTION	1985	Cu ppm	Fe ppm	Hg ppb	K ppm	Mg ppm
		SAMPLE DATE					
1046	RT-1 5- 7 Feet	8/ 1	30.	28250.	<.050	9125.	9375.
1047	RT-1 10-12 Feet	8/ 1	25.	28250.	<.050	9125.	10500.
1048	RT-2 1- 3 Feet	8/ 2	715.	82500.	1.0	685.	12750.
1049	RT-2 3- 8 Feet	8/ 2	425.	90000.	2.0	410.	14000.
1050	RT-2 12-18 Feet	8/ 2	535.	46250.	4.8	685.	15375.
1051	RFTP 10-11 Feet	8/ 2	685.	51250.	2.5	915.	14375.
1052	RFTP 11-12 Feet	8/ 2	240.	62500.	1.2	530.	10125.

LAB #	SAMPLE DESCRIPTION	1985	Mn ppm	Na ppm	Ni ppm	Pb ppm	Sb ppm
		SAMPLE DATE					
1046	RT-1 5- 7 Feet	8/ 1	740.	305.	70.	50.	<5.0
1047	RT-1 10-12 Feet	8/ 1	570.	295.	60.	25.	<5.0
1048	RT-2 1- 3 Feet	8/ 2	7000.	140.	105.	8000.	<5.0
1049	RT-2 3- 8 Feet	8/ 2	7500.	115.	90.	7100.	85.
1050	RT-2 12-18 Feet	8/ 2	2625.	205.	65.	7400.	50.
1051	RFTP 10-11 Feet	8/ 2	2625.	205.	65.	8900.	<5.0
1052	RFTP 11-12 Feet	8/ 2	5750.	170.	115.	3400.	<5.0



American Environmental Consultants  
Division of ASARCO Incorporated  
Salt Lake City, Utah

COMPANY United Park City Mines  
Soil & Vegetation Sample Results

DATE RECEIVED 8/ 8/85  
DATE REPORTED 10/ 9/85

LAB #	SAMPLE DESCRIPTION	1985 SAMPLE DATE	Se ppm	Tl ppm	V ppm	Zn ppm
1046	RT-1 5- 7 Feet	8/ 1	<5.0	8.0	50.	70.
1047	RT-1 10-12 Feet	8/ 1	<5.0	8.5	65.	85.
1048	RT-2 1- 3 Feet	8/ 2	<5.0	30.	20.	6550.
1049	RT-2 3- 8 Feet	8/ 2	<5.0	28.	15.	34500.
1050	RT-2 12-18 Feet	8/ 2	<5.0	19.	15.	17550.
1051	RFTP 10-11 Feet	8/ 2	<5.0	19.	20.	23750.
1052	RFTP 11-12 Feet	8/ 2	<5.0	27.	15.	15050.

American Environmental Consultants  
Division of ASARCO Incorporated  
Salt Lake City, Utah

COMPANY United Park City Mines  
Water Sample Results

DATE RECEIVED 8/ 7/85

DATE REPORTED 10/ 9/85

LAB #	SAMPLE DESCRIPTION	1985 SAMPLE DATE	Ag ppm	Ag(D) ppm	Al ppm	Al(D) ppm	As ppm
1040	MW-1a	8/ 2			9.7	<.020	.040
1041	MW-1b	8/ 2	<.010	<.010			
1042	MW-2a	8/ 2	<.010		1.0	<.020	.22
1043	MW-2b	8/ 2		<.010			
1044	RT-1a	8/ 2			.55	<.020	.005
1045	RT-1b	8/ 2	<.010	<.010			

LAB #	SAMPLE DESCRIPTION	1985 SAMPLE DATE	Ba ppm	Ba(D) ppm	Be ppm	Be(D) ppm	CN- ppm
1040	MW-1a	8/ 2	.080	.070	<.020		
1041	MW-1b	8/ 2				<.020	<.004
1042	MW-2a	8/ 2	.080	.070	<.020		
1043	MW-2b	8/ 2				<.020	.087
1044	RT-1a	8/ 2	.070	.070	<.020		
1045	RT-1b	8/ 2				<.020	<.004

American Environmental Consultants  
Division of ASARCO Incorporated  
Salt Lake City, Utah

COMPANY United Park City Mines  
Water Sample Results

DATE RECEIVED 8/ 7/85  
DATE REPORTED 10/ 9/85

LAB #	SAMPLE DESCRIPTION	1985 SAMPLE DATE	Ca ppm	Cd ppm	Cd(D) ppm	Co ppm	Co(D) ppm
1040	MW-1a	8/ 2	196.	.008	<.002	.12	.060
1041	MW-1b	8/ 2					
1042	MW-2a	8/ 2	167.	.010	<.002	.15	.13
1043	MW-2b	8/ 2					
1044	RT-1a	8/ 2	31.	<.002	<.002	.020	.020
1045	RT-1b	8/ 2					

LAB #	SAMPLE DESCRIPTION	1985 SAMPLE DATE	Cr ppm	Cr(D) ppm	Cu ppm	Cu(D) ppm	Fe ppm
1040	MW-1a	8/ 2	.080	.070	1.5	.012	24.
1041	MW-1b	8/ 2					
1042	MW-2a	8/ 2	.10	.080	.15	.008	19.
1043	MW-2b	8/ 2					
1044	RT-1a	8/ 2	.070	.070	.005	<.005	.52
1045	RT-1b	8/ 2					

American Environmental Consultants  
Division of ASARCO Incorporated  
Salt Lake City, Utah

COMPANY United Park City Mines  
Water Sample Results

DATE RECEIVED 8/ 7/85  
DATE REPORTED 10/ 9/85

LAB #	SAMPLE DESCRIPTION	1985 SAMPLE DATE	Fe(D) ppm	Hg ppb	K ppm	Mg ppm	Mn ppm
1040	MW-1a	8/ 2	.30	<.050	10.	77.	2.3
1041	MW-1b	8/ 2					
1042	MW-2a	8/ 2	13.	<.50	7.1	77.	10.
1043	MW-2b	8/ 2					
1044	RT-1a	8/ 2	.12	<.50	1.2	9.6	.020
1045	RT-1b	8/ 2					

LAB #	SAMPLE DESCRIPTION	1985 SAMPLE DATE	Mn(D) ppm	Na ppm	Ni ppm	Ni(D) ppm	Pb ppm
1040	MW-1a	8/ 2	.93		.37	.20	.27
1041	MW-1b	8/ 2		40.			
1042	MW-2a	8/ 2	9.6		.27	.23	.83
1043	MW-2b	8/ 2		50.			
1044	RT-1a	8/ 2	.020		.080	.070	.017
1045	RT-1b	8/ 2		18.			

American Environmental Consultants  
Division of ASARCO Incorporated  
Salt Lake City, Utah

COMPANY United Park City Mines  
Water Sample Results

DATE RECEIVED 8/ 7/85  
DATE REPORTED 10/ 9/85

LAB #	SAMPLE DESCRIPTION	1985 SAMPLE DATE	Pb(D) ppm	SO4 ppm	Sb ppm	Sb(D)	Se ppm
1040	MW-1a	8/ 2	<.017		<.020		.009
1041	MW-1b	8/ 2		544.		<.020	
1042	MW-2a	8/ 2	<.017		<.020		.009
1043	MW-2b	8/ 2		687.		<.020	
1044	RT-1a	8/ 2	.017		<.020		<.005
1045	RT-1b	8/ 2		24.		<.020	

LAB #	SAMPLE DESCRIPTION	1985 SAMPLE DATE	Sn ppm	Tl ppm	Tl(D)	V ppm	V(D)
1040	MW-1a	8/ 2					
1041	MW-1b	8/ 2	<1.0	.064	.040	.23	<.020
1042	MW-2a	8/ 2					
1043	MW-2b	8/ 2	<1.0	.050	.048	.020	<.020
1044	RT-1a	8/ 2					
1045	RT-1b	8/ 2	<1.0	.007	.003	<.020	<.020

American Environmental Consultants  
Division of ASARCO Incorporated  
Salt Lake City, Utah

COMPANY United Park City Mines  
Water Sample Results

DATE RECEIVED 8/ 7/85  
DATE REPORTED 10/ 9/85

LAB #	SAMPLE DESCRIPTION	1985 SAMPLE DATE	Zn ppm	Zn(D) ppm
1040	MW-1a	8/ 2		
1041	MW-1b	8/ 2	.48	.020
1042	MW-2a	8/ 2		
1043	MW-2b	8/ 2	2.4	.16
1044	RT-1a	8/ 2		
1045	RT-1b	8/ 2	.010	.010

**AMERICAN  
ENVIRONMENTAL  
CONSULTANTS**

August 5, 1985

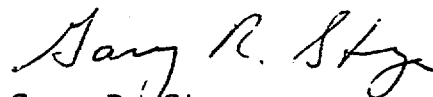
Mr. Joe McPhie  
United Park City Mines  
Box 1450  
Park City, Utah 84060

Dear Sir:

Attached are the results for the split samples collected in conjunction with the Richardson Flat Tailings study. The tailings samples were prepared for Pb, Zn, Mn and Cu by digesting two different aliquots in a  $\text{HNO}_3/\text{HClO}_4/\text{HF}$  acid mixture and averaging the results of the replicate analyses. Bulk samples for Hg were subjected to a warm  $\text{HNO}_3$  digestion prior to analyses. Two NBS standard reference materials (1648 and 1645) were prepared and analyzed along with the unknowns. Enclosed is a copy of the results of those analyses and the corresponding certified values. Water samples were analyzed in the normal manner using a  $\text{HNO}_3/\text{HClO}_4$  acid mixture.

If you have any questions regarding the attached data, please let me know.

Sincerely,



Gary R. Stanga  
Manager of Laboratory  
Services

GRS/lb  
Attach.

American Environmental Consultants  
Division of ASARCO Incorporated  
Salt Lake City, Utah

COMPANY United Park City Mines  
Solid Waste Sample Results

DATE RECEIVED 6/25/85  
DATE REPORTED 8/ 2/85

LAB #	SAMPLE DESCRIPTION	1985	CN-	Cu	Hg	Mn	Pb
		SAMPLE DATE					
			ppm	ppm	ppb	ppm	ppm
905	RT-SO-1 Upgradient Background	6/19	<.50	93.	.45	969.	1103.
906	RT-SO-4 S.E. Portion of Tailings	6/19	<.50	240.	1.5	1847.	3725.
907	RT-SO-5 Mid-Portion of Tailings	6/19	<.50	215.	2.2	2499.	3104.
908	RT-SO-6 W.S.W. Portion of Tailings	6/19	<.50	444.	.15	556.	13197.
909	RT-SO-7 Mid-Upper Tailings	6/19	<.50	1078.	.54	5463.	9444.

LAB #	SAMPLE DESCRIPTION	1985	Zn
		SAMPLE DATE	
			ppm
905	RT-SO-1 Upgradient Background	6/19	1427.
906	RT-SO-4 S.E. Portion of Tailings	6/19	6682.
907	RT-SO-5 Mid-Portion of Tailings	6/19	6272.
908	RT-SO-6 W.S.W. Portion of Tailings	6/19	6599.
909	RT-SO-7 Mid-Upper Tailings	6/19	4074.

Dates of Analysis: Pb, Zn, Mn, Cu - 7/26/85  
CN<sup>-</sup> - 7/29  
Hg - 7/30



American Environmental Consultants  
Division of ASARCO Incorporated  
Salt Lake City, Utah

COMPANY United Park City Mines  
Water Sample Results

DATE RECEIVED 6/25/85  
DATE REPORTED 8/ 2/85

LAB #	SAMPLE DESCRIPTION	1985	Cu ppm	Hg ppb	Mn ppm	Pb ppm	SO4 ppm
		SAMPLE DATE					
910	RT-SW-1 Upstream Bckgrnd. Silver Creek	6/20	.018	.60	.80	.20	277.
911	RT-SW-2 Silver Creek by R.R. Tracks	6/20	.012	.50	.47	.11	236.
912	RT-SW-3 Keetly Junction Trussel	6/20	.24	2.6	1.7	7.4	225.
913	RT-SW-4 S.E.Tailings, Intermitt. Stream	6/20	.014	<.50	.60	.12	200.
914	RT-SW-5 Interm. Stream, 60' S. Road	6/20	.012	<.50	1.8	.075	641.
915	RT-SW-6 Interm. Stream, at Culvert	6/20	.012	.50	2.8	.058	798.

.05

LAB #	SAMPLE DESCRIPTION	1985	Zn ppm
		SAMPLE DATE	
910	RT-SW-1 Upstream Bckgrnd. Silver Creek	6/20	2.7
911	RT-SW-2 Silver Creek by R.R. Tracks	6/20	1.7
912	RT-SW-3 Keetly Junction Trussel	6/20	6.4
913	RT-SW-4 S.E.Tailings, Intermitt. Stream	6/20	.19
914	RT-SW-5 Interm. Stream, 60' S. Road	6/20	1.4
915	RT-SW-6 Interm. Stream, at Culvert	6/20	.82

Dates of Analysis: Pb, Zn, Mn, Cu - 7/25/85  
Hg - 7/30/85  
SO4 - 7/31/85



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
REGION VIII  
ONE DENVER PLACE — 999 18TH STREET — SUITE 1300  
DENVER, COLORADO 80202-2413

JAN 5 1986

Ref: 8HWM-SR

Kerry Gee  
United Park City Mines  
309 Kearns Building  
Salt Lake City, Utah 84101

Dear Mr. Gee:

Enclosed per your recent telephone request is a copy of the site inspection for the Richardson Flat site in Utah. Please contact me at 303-293-1532 if you have any questions regarding this report.

Sincerely,

A handwritten signature in cursive script that reads "Kelcey Yarbrough Land".

Kelcey Yarbrough Land  
Regional Project Manager  
Superfund Program Section

Enclosure

*Rich. Flats.*



# Potential Hazardous Waste Site

## Site Inspection Report



POTENTIAL HAZARDOUS WASTE SITE  
SITE INSPECTION REPORT  
PART 1 - SITE LOCATION AND INSPECTION INFORMATION

I. IDENTIFICATION

01 STATE UT 02 SITE NUMBER D980952840

II. SITE NAME AND LOCATION

01 SITE NAME (Legal, common, or descriptive name of site) Richardson Flat Tailings  
02 STREET, ROUTE NO., OR SPECIFIC LOCATION IDENTIFIER ~3.5 miles NE of Park City, Utah  
03 CITY Park City 04 STATE UT 05 ZIP CODE 84060 06 COUNTY Summit 07 COUNTY CODE 043 08 CONG DIST UT-03  
09 COORDINATES  
LATITUDE 40 40 50 LONGITUDE 111 26 40  
10 TYPE OF OWNERSHIP (Check one)  
☒ A. PRIVATE ☐ B. FEDERAL ☐ C. STATE ☐ D. COUNTY ☐ E. MUNICIPAL  
☐ F. OTHER ☐ G. UNKNOWN

III. INSPECTION INFORMATION

01 DATE OF INSPECTION 6/19/85 \* 02 SITE STATUS  
☐ ACTIVE  
☒ INACTIVE 03 YEARS OF OPERATION  
late 1960's 1961 UNKNOWN  
BEGINNING YEAR ENDING YEAR  
04 AGENCY PERFORMING INSPECTION (Check all that apply)  
☐ A. EPA ☒ B. EPA CONTRACTOR Ecology & Environment, Inc. (ESE) ☐ C. MUNICIPAL ☐ D. MUNICIPAL CONTRACTOR  
☐ E. STATE ☐ F. STATE CONTRACTOR ☐ G. OTHER (Name of firm) (Specify)

05 CHIEF INSPECTOR	06 TITLE	07 ORGANIZATION	08 TELEPHONE NO.
<u>Susan Kennedy</u>	<u>Reclamation Biologist</u>	<u>ESE FITB</u>	<u>(303) 757-4984</u>
09 OTHER INSPECTORS	10 TITLE	11 ORGANIZATION	12 TELEPHONE NO.
<u>Eric Johnson</u>	<u>EPA Reg. Site Project Officer</u>	<u>EPA-Region 8</u>	<u>(303) 293-1519</u>
<u>Jeff Holcomb</u>	<u>Chemical Engineer</u>	<u>ESE FITB</u>	<u>(303) 757-4984</u>
<u>Tom Smith</u>	<u>Safety Officer</u>	<u>ESE FITB</u>	<u>(303) 757-4984</u>
<u>Wade Hansen</u>	<u>Geologist</u>	<u>Utah Dept. Env. Health</u>	<u>(801) 533-4145</u>
<u>Rob Smith</u> <u>Dave Tuesday</u>	<u>Chief Hydrogeologist</u> <u>Geochemist</u>	<u>ESE FITB</u>	<u>(303) 757-4984</u>

13 SITE REPRESENTATIVES INTERVIEWED	14 TITLE	15 ADDRESS	16 TELEPHONE NO.
<u>E.L. Osika, Jr.</u>	<u>Vice President</u>	<u>United Park City Mine</u> <u>309 Years Bldg, SLC, UT</u>	<u>(801) 532-4631</u>
<u>Kerry C. Gee</u>	<u>Geologist/Engineer</u>	<u>same as above</u>	<u>(801) 532-4631</u>
			( )
			( )
			( )
			( )

17 ACCESS GAINED BY (Check one)  
☒ PERMISSION ☐ WARRANT 18 TIME OF INSPECTION  
19 WEATHER CONDITIONS  
varied

IV. INFORMATION AVAILABLE FROM

01 CONTACT	02 OF (Agency/Organization)	03 TELEPHONE NO.		
<u>Eric Johnson</u>	<u>EPA-Region VIII Denver</u>	<u>(303) 293-1519</u>		
04 PERSON RESPONSIBLE FOR SITE INSPECTION FORM	05 AGENCY	06 ORGANIZATION	07 TELEPHONE NO.	08 DATE
<u>Susan Kennedy</u>	<u>EPA</u>	<u>ESE FITB</u>	<u>(303) 757-4984</u>	<u>8/27/85</u> MONTH DAY YEAR

\* 6/19, 20/85  
7/30, 31/85  
8/1, 2/85



POTENTIAL HAZARDOUS WASTE SITE  
SITE INSPECTION REPORT  
PART 2 - WASTE INFORMATION

I. IDENTIFICATION

01 STATE 02 SITE NUMBER  
UT 10980952 840

II. WASTE STATES, QUANTITIES, AND CHARACTERISTICS

01 PHYSICAL STATES (Check all that apply)

- ☒ A. SOLID  
☒ B. POWDER, FINES  
☐ C. SLUDGE  
☐ D. OTHER \_\_\_\_\_  
(Specify)
- ☒ E. SLURRY  
☐ F. LIQUID  
☐ G. GAS

02 WASTE QUANTITY AT SITE

(Measures of waste quantities must be independent)

TONS > 7 million

CUBIC YARDS \_\_\_\_\_

NO. OF DRUMS \_\_\_\_\_

03 WASTE CHARACTERISTICS (Check all that apply)

- ☒ A. TOXIC  
☐ B. CORROSIVE  
☐ C. RADIOACTIVE  
☒ D. PERSISTENT
- ☒ E. SOLUBLE  
☐ F. INFECTIOUS  
☐ G. FLAMMABLE  
☐ H. IGNITABLE
- ☐ I. HIGHLY VOLATILE  
☐ J. EXPLOSIVE  
☐ K. REACTIVE  
☐ L. INCOMPATIBLE  
☐ M. NOT APPLICABLE

III. WASTE TYPE

CATEGORY	SUBSTANCE NAME	01 GROSS AMOUNT	02 UNIT OF MEASURE	03 COMMENTS
SLU	SLUDGE			
OLW	OILY WASTE			
SOL	SOLVENTS			
PSD	PESTICIDES			
OCC	OTHER ORGANIC CHEMICALS			
IOC	INORGANIC CHEMICALS	Elevated		arsenic and Sodium, cyanide.
ACD	ACIDS			
BAS	BASES			
MES	HEAVY METALS	Heavy metals		in tailings material; at least 7 million tons of tailings

IV. HAZARDOUS SUBSTANCES (See Appendix for most frequently cited CAS Numbers)

01 CATEGORY	02 SUBSTANCE NAME	03 CAS NUMBER	04 STORAGE/DISPOSAL METHOD	05 CONCENTRATION	06 MEASURE OF CONCENTRATION
IOC	Arsenic	999	Surface impoundment	1650	mg/kg
MES	Cadmium	999	(tailings)	56	mg/kg
MES	Copper	999		435	mg/kg
MES	Lead	999		538	mg/kg
MES	Manganese	999		2280	mg/kg
MES	Mercury	999		1.24	mg/kg
MES	Nickel	7440-02-0		23	mg/kg
MES	Silver	999		21	mg/kg
IOC	Sodium	999		2998	mg/kg
MES	Zinc	999		5353	mg/kg
IOC	Cyanide	999		5.2	mg/g

\* Concentration figures are averages of 4 surface tailings samples (RT-50-4, 5, 6 & 7). Total metals.

V. FEEDSTOCKS (See Appendix for CAS Numbers)

CATEGORY	01 FEEDSTOCK NAME	02 CAS NUMBER	CATEGORY	01 FEEDSTOCK NAME	02 CAS NUMBER
FDS	None		FDS		
FDS			FDS		
FDS			FDS		
FDS			FDS		

VI. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

Ecology & Environment, Inc. files - raw data  
Sampling Activities Report



**POTENTIAL HAZARDOUS WASTE SITE  
SITE INSPECTION REPORT  
PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS**

**I. IDENTIFICATION**

01 STATE UT 02 SITE NUMBER D180952840

**II. HAZARDOUS CONDITIONS AND INCIDENTS**

<p>01 <input checked="" type="checkbox"/> A. GROUNDWATER CONTAMINATION 03 POPULATION POTENTIALLY AFFECTED: _____</p>	<p>02 <input type="checkbox"/> OBSERVED (DATE: <u>8/2/85</u>) <input type="checkbox"/> POTENTIAL <input checked="" type="checkbox"/> ALLEGED 04 NARRATIVE DESCRIPTION <u>Groundwater samples from UTM wells KT-60-2, KT-60-3 were collected and analyzed. Dissolved metals analyses revealed elevated levels of arsenic, cobalt, iron, manganese, and zinc. A drinking water well used as a back-up source for Park City residents, is located two and a half miles from the contaminated wells at Richardson Flat.</u></p>
<p>01 <input checked="" type="checkbox"/> B. SURFACE WATER CONTAMINATION 03 POPULATION POTENTIALLY AFFECTED: <u>878</u></p>	<p>02 <input checked="" type="checkbox"/> OBSERVED (DATE: <u>6/20/85</u>) <input type="checkbox"/> POTENTIAL <input type="checkbox"/> ALLEGED 04 NARRATIVE DESCRIPTION <u>Surface water samples from Silver Creek, collected downgradient of the site, contained elevated levels of lead. RT-SW-3 (downgradient) contained 1985 µg/l lead as compared to RT-SW-1 (upgradient) containing 447 µg/l lead. Arsenic levels were also elevated, but not an order of magnitude higher than the upgradient sample.</u></p>
<p>01 <input checked="" type="checkbox"/> C. CONTAMINATION OF AIR 03 POPULATION POTENTIALLY AFFECTED: _____</p>	<p>02 <input type="checkbox"/> OBSERVED (DATE: _____) <input checked="" type="checkbox"/> POTENTIAL <input type="checkbox"/> ALLEGED 04 NARRATIVE DESCRIPTION <u>Air-borne tailings particles were observed during afternoon gusty winds on June 19, 1985. The EPA FIT did not conduct HIVE air monitoring at Richardson Flat, however.</u></p>
<p>01 <input type="checkbox"/> D. FIRE/EXPLOSIVE CONDITIONS 03 POPULATION POTENTIALLY AFFECTED: _____</p>	<p>02 <input type="checkbox"/> OBSERVED (DATE: _____) <input type="checkbox"/> POTENTIAL <input type="checkbox"/> ALLEGED 04 NARRATIVE DESCRIPTION <u>No recorded history -- fire and explosive conditions do not exist at the site.</u></p>
<p>01 <input checked="" type="checkbox"/> E. DIRECT CONTACT 03 POPULATION POTENTIALLY AFFECTED: _____</p>	<p>02 <input type="checkbox"/> OBSERVED (DATE: _____) <input checked="" type="checkbox"/> POTENTIAL <input type="checkbox"/> ALLEGED 04 NARRATIVE DESCRIPTION <u>The site is not secured from public access or access by domestic livestock. On June 19 and 20, vehicles were observed driving near the Tailings area along the access road. Sheep and cattle were observed walking on the tailings on June 19 and 20, 1985.</u></p>
<p>01 <input checked="" type="checkbox"/> F. CONTAMINATION OF SOIL 03 AREA POTENTIALLY AFFECTED: <u>640</u> (KT-SS-6)</p>	<p>02 <input type="checkbox"/> OBSERVED (DATE: <u>8/2/85</u>) <input type="checkbox"/> POTENTIAL <input checked="" type="checkbox"/> ALLEGED 04 NARRATIVE DESCRIPTION <u>Soil beneath the tailings contains elevated concentrations of antimony, arsenic, cadmium, copper, lead, magnesium, mercury, silver, sodium and zinc. Off-site (surface soil (KT-SO-1)) contained elevated levels of arsenic, cadmium, lead, mercury and zinc probably due to wind-blown tailings material.</u></p>
<p>01 <input checked="" type="checkbox"/> G. DRINKING WATER CONTAMINATION 03 POPULATION POTENTIALLY AFFECTED: _____</p>	<p>02 <input type="checkbox"/> OBSERVED (DATE: _____) <input checked="" type="checkbox"/> POTENTIAL <input type="checkbox"/> ALLEGED 04 NARRATIVE DESCRIPTION <u>The Pacific Bridge well (located ~2.5 mi from the site) may potentially be affected by contaminants from Richardson Flat Tailings. The well is used only as a backup source by municipal water for Park City residents, with other sources available. Surface water from Silver Creek is not used for drinking water.</u></p>
<p>01 <input checked="" type="checkbox"/> H. WORKER EXPOSURE/INJURY 03 WORKERS POTENTIALLY AFFECTED: _____</p>	<p>02 <input type="checkbox"/> OBSERVED (DATE: _____) <input checked="" type="checkbox"/> POTENTIAL <input type="checkbox"/> ALLEGED 04 NARRATIVE DESCRIPTION <u>The tailings are being leased by Mr. Ray Worthy to be used as backfill for sewer lines and road base. Qualification FIT members observed heavy equipment operators dumping what appeared to be native soil on the tailings area.</u></p>
<p>01 <input checked="" type="checkbox"/> I. POPULATION EXPOSURE/INJURY 03 POPULATION POTENTIALLY AFFECTED: _____</p>	<p>02 <input type="checkbox"/> OBSERVED (DATE: _____) <input checked="" type="checkbox"/> POTENTIAL <input type="checkbox"/> ALLEGED 04 NARRATIVE DESCRIPTION <u>No recorded history of population exposure or injury, however, the site is not secured from public access or domestic livestock grazing.</u></p>



POTENTIAL HAZARDOUS WASTE SITE  
SITE INSPECTION REPORT

PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION

01 STATE 02 SITE NUMBER

UT 098095a840

II. HAZARDOUS CONDITIONS AND INCIDENTS (Continued)

01 ☒ J. DAMAGE TO FLORA  
04 NARRATIVE DESCRIPTION

02 ☒ OBSERVED (DATE: 6/19/85)

☐ POTENTIAL

☐ ALLEGED

Peripheral tailings support vegetation including *Junceus* sp., *Salix* sp. & *Verbascum thapsus* predominantly, but most of the tailings are denuded due to high levels of soluble salts and metals.

01 ☒ K. DAMAGE TO FAUNA

04 NARRATIVE DESCRIPTION (include name(s) of species)

02 ☐ OBSERVED (DATE: \_\_\_\_\_)

☒ POTENTIAL

☐ ALLEGED

No apparent damage to area fauna. Two muskrats were observed swimming in the drainage ditch on site (near RT-SW-4). Fish in Silver Creek could potentially be affected by lead and arsenic being released from the tailings.

01 ☒ L. CONTAMINATION OF FOOD CHAIN

04 NARRATIVE DESCRIPTION

02 ☐ OBSERVED (DATE: \_\_\_\_\_)

☒ POTENTIAL

☐ ALLEGED

The possibility exists for metals to move through the food chain if domestic livestock are feeding on local vegetation that has taken up and stored metals in edible portions of the plant, or if local populations of fish in Silver Creek are concentrating metals, and are eaten by other animals or man.

01 ☒ M. UNSTABLE CONTAINMENT OF WASTES

(Spills/Runoff/Standing liquids, Leaking drums)

03 POPULATION POTENTIALLY AFFECTED:

02 ☐ OBSERVED (DATE: \_\_\_\_\_)

☐ POTENTIAL

☐ ALLEGED

04 NARRATIVE DESCRIPTION

Tailings ponds are uncovered and therefore susceptible to gusty winds which carry fine-grain tailings material off-site. A dam constructed at the northwest end of the tailings prevents movement of solid material off-site.

01 ☒ N. DAMAGE TO OFFSITE PROPERTY

04 NARRATIVE DESCRIPTION

02 ☐ OBSERVED (DATE: \_\_\_\_\_)

☒ POTENTIAL

☐ ALLEGED

The potential exists for damage to off-site property because the tailings material is allegedly being used as sewer line backfill and road base in the Park City area.

01 ☒ O. CONTAMINATION OF SEWERS, STORM DRAINS, WWTPs

04 NARRATIVE DESCRIPTION

02 ☐ OBSERVED (DATE: \_\_\_\_\_)

☒ POTENTIAL

☐ ALLEGED

If tailings material is being used as sewer line backfill, the potential exists for sewer contamination by metals.

01 ☐ P. ILLEGAL/UNAUTHORIZED DUMPING

04 NARRATIVE DESCRIPTION

02 ☐ OBSERVED (DATE: \_\_\_\_\_)

☐ POTENTIAL

☐ ALLEGED

Dumping of native soil on to the tailings was observed by FIT members, but is under the supervision of United Park City Mines.

05 DESCRIPTION OF ANY OTHER KNOWN, POTENTIAL, OR ALLEGED HAZARDS

No other hazards are known.

III. TOTAL POPULATION POTENTIALLY AFFECTED: \_\_\_\_\_

IV. COMMENTS

V. SOURCES OF INFORMATION (Cite specific references, e. g., state files, sample analysis, reports)

Ecology & Environment, Inc. files - Log Book  
Sampling Activities Report  
State of Utah DSW Site Investigation and PA





<b>POTENTIAL HAZARDOUS WASTE SITE SITE INSPECTION REPORT</b> <b>PART 5 - WATER, DEMOGRAPHIC, AND ENVIRONMENTAL DATA</b>						<b>I. IDENTIFICATION</b> 01 STATE <u>UT</u> 02 SITE NUMBER <u>D980953840</u>	
<b>II. DRINKING WATER SUPPLY</b>							
01 TYPE OF DRINKING SUPPLY <small>(Check as applicable)</small> SURFACE WELL COMMUNITY A. <input type="checkbox"/> B. <input checked="" type="checkbox"/> NON-COMMUNITY C. <input type="checkbox"/> D. <input type="checkbox"/>			02 STATUS ENDANGERED A. <input checked="" type="checkbox"/> B. <input type="checkbox"/> C. <input type="checkbox"/> D. <input type="checkbox"/> E. <input type="checkbox"/> F. <input type="checkbox"/>			03 DISTANCE TO SITE A. <u>2.5</u> (mi) B. _____ (mi)	
<b>III. GROUNDWATER</b>							
01 GROUNDWATER USE IN VICINITY <small>(Check one)</small> <input type="checkbox"/> A. ONLY SOURCE FOR DRINKING <input checked="" type="checkbox"/> B. DRINKING <small>(Other sources available)</small> COMMERCIAL, INDUSTRIAL, IRRIGATION <small>(No other water sources available)</small> <input type="checkbox"/> C. COMMERCIAL, INDUSTRIAL, IRRIGATION <small>(Limited other sources available)</small> <input type="checkbox"/> D. NOT USED, UNUSEABLE							
02 POPULATION SERVED BY GROUND WATER <u>4500</u>				03 DISTANCE TO NEAREST DRINKING WATER WELL <u>2.5</u> (mi)			
04 DEPTH TO GROUNDWATER <u>20</u> (ft)		05 DIRECTION OF GROUNDWATER FLOW <u>North</u>		06 DEPTH TO AQUIFER OF CONCERN <u>20</u> (ft)		07 POTENTIAL YIELD OF AQUIFER <u>60,000</u> (gpd)            08 SOLE SOURCE AQUIFER <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	
09 DESCRIPTION OF WELLS <small>(Including usage, depth, and location relative to population and buildings)</small> <u>Pacific Bridge Well, within 3 miles of the site, it used as a backup municipal water source for the 4500 residents of Park City, Utah. The well, however, has not been tapped since the summer of 1983.</u>							
10 RECHARGE AREA <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO            COMMENTS _____				11 DISCHARGE AREA <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO            COMMENTS _____			
<b>IV. SURFACE WATER</b>							
01 SURFACE WATER USE <small>(Check one)</small> <input type="checkbox"/> A. RESERVOIR, RECREATION DRINKING WATER SOURCE <input checked="" type="checkbox"/> B. IRRIGATION, ECONOMICALLY IMPORTANT RESOURCES <input type="checkbox"/> C. COMMERCIAL, INDUSTRIAL <input type="checkbox"/> D. NOT CURRENTLY USED							
02 AFFECTED/POTENTIALLY AFFECTED BODIES OF WATER NAME: <u>Silver Creek</u> AFFECTED <input checked="" type="checkbox"/> DISTANCE TO SITE <u>~300 ft</u> (mi)							
<b>V. DEMOGRAPHIC AND PROPERTY INFORMATION</b>							
01 TOTAL POPULATION WITHIN ONE (1) MILE OF SITE TWO (2) MILES OF SITE THREE (3) MILES OF SITE A. <u>0</u> B. <u>0</u> C. <u>95</u> <small>NO. OF PERSONS NO. OF PERSONS NO. OF PERSONS</small>						02 DISTANCE TO NEAREST POPULATION <u>1.9</u> (mi)	
03 NUMBER OF BUILDINGS WITHIN TWO (2) MILES OF SITE <u>2</u>				04 DISTANCE TO NEAREST OFF-SITE BUILDING <u>1.9</u> (mi)			
05 POPULATION WITHIN VICINITY OF SITE <small>(Provide narrative description of nature of population within vicinity of site, e.g., rural, village, densely populated urban area)</small> <u>Park City, Utah is approximately 3.25 miles southwest of the site. The population fluctuates from 4500 to 10,000 during the winter ski season. The year-round permanent population is approximately 4500.</u>							



POTENTIAL HAZARDOUS WASTE SITE  
SITE INSPECTION REPORT  
PART 5 - WATER, DEMOGRAPHIC, AND ENVIRONMENTAL DATA

I. IDENTIFICATION

01 STATE 02 SITE NUMBER  
UT D980952840

VI. ENVIRONMENTAL INFORMATION

01 PERMEABILITY OF UNSATURATED ZONE (Check one)

☐ A.  $10^{-6} - 10^{-8}$  cm/sec ☐ B.  $10^{-4} - 10^{-6}$  cm/sec ☐ C.  $10^{-4} - 10^{-3}$  cm/sec ☒ D. GREATER THAN  $10^{-3}$  cm/sec

02 PERMEABILITY OF BEDROCK (Check one)

☐ A. IMPERMEABLE  
(Less than  $10^{-6}$  cm/sec) ☒ B. RELATIVELY IMPERMEABLE  
( $10^{-4} - 10^{-6}$  cm/sec) ☐ C. RELATIVELY PERMEABLE  
( $10^{-2} - 10^{-4}$  cm/sec) ☐ D. VERY PERMEABLE  
(Greater than  $10^{-2}$  cm/sec)

03 DEPTH TO BEDROCK

60 (ft)

04 DEPTH OF CONTAMINATED SOIL ZONE

Unknown (ft)

05 SOIL pH

7.74

06 NET PRECIPITATION

-12 (in)

07 ONE YEAR 24 HOUR RAINFALL

1.25 (in)

08 SLOPE  
SITE SLOPE

0-5 %

DIRECTION OF SITE SLOPE

NNE

TERRAIN AVERAGE SLOPE

0-5 %

09 FLOOD POTENTIAL

SITE IS IN 100 YEAR FLOODPLAIN

10

☐ SITE IS ON BARRIER ISLAND, COASTAL HIGH HAZARD AREA, RIVERINE FLOODWAY

11 DISTANCE TO WETLANDS (5 acre minimum)

ESTUARINE

OTHER

A. NA (mi)

B. (mi)

12 DISTANCE TO CRITICAL HABITAT (of endangered species)

NA (mi)

ENDANGERED SPECIES: No endangered species in park area

13 LAND USE IN VICINITY

DISTANCE TO:

COMMERCIAL/INDUSTRIAL

A. 3.5 (mi)

RESIDENTIAL AREAS; NATIONAL/STATE PARKS,  
FORESTS, OR WILDLIFE RESERVES

B. 3 (mi)

AGRICULTURAL LANDS  
PRIME AG LAND AG LAND

C. NA (mi) D. 41 mi (mi)

adjacent to site  
pastureland, hay

14 DESCRIPTION OF SITE IN RELATION TO SURROUNDING TOPOGRAPHY

Richardson Flat is a slight natural depression at the base of the Wasatch Range, adjacent to Silver Creek.

VII. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

Ecology & Environment, Inc. files  
Personal Communication w/ USFWS - Salt Lake City  
Baker, C. M. Jr. 1970. Water Resources of the Heber-Granville Park City Area. North-Central, Utah. Utah Dept. of Nat. Res. Tech. Publ. No. 27.



POTENTIAL HAZARDOUS WASTE SITE  
SITE INSPECTION REPORT  
PART 6 - SAMPLE AND FIELD INFORMATION

I. IDENTIFICATION

01 STATE 02 SITE NUMBER  
UT 0980952840

II. SAMPLES TAKEN

SAMPLE TYPE	01 NUMBER OF SAMPLES TAKEN	02 SAMPLES SENT TO	03 ESTIMATED DATE RESULTS AVAILABLE
GROUNDWATER	3	EPA Region 8 Laboratory - Lakewood, CO	Rec'd 10/16/85
SURFACE WATER	6	" " " " " "	Rec'd 7/12/85
Tailings Surface	4	" " " " " "	Rec'd 7/12/85
WASTE Subsurface	4	EPA Region 8 Lab and Versar Inc, Springfield, VA	Rec'd 10/16/85
AIR			
RUNOFF			
SPILL			
SOIL Surface	1	EPA Region 8 Lab	Rec'd 7/12/85
Subsurface	2	EPA Region 8 Lab and Versar, Inc, Springfield, VA	Rec'd 10/16/85
VEGETATION			
OTHER			

III. FIELD MEASUREMENTS TAKEN

01 TYPE	02 COMMENTS
pH	Groundwater samples ranged from 6.43 to 6.89 Surface water samples (Silver Cr., tailings ditch) ranged from 7.26 to 7.54
temperature	Groundwater - 9.5°C to 11°C Surface water - 19°C to 20°C
conductivity	Groundwater - 350 to 1450 $\mu$ mhos/cm Surface water - 550 to 1400 $\mu$ mhos/cm
volatile organics (HVs)	no readings greater than background
radiation	no readings greater than background


IV. PHOTOGRAPHS AND MAPS


01 TYPE <input checked="" type="checkbox"/> GROUND <input type="checkbox"/> AERIAL	02 IN CUSTODY OF E&E FIT 8 files (Name of organization or individual)
03 MAPS <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	04 LOCATION OF MAPS E&E FIT 8 files


V. OTHER FIELD DATA COLLECTED (Provide narrative description)

VI. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

Ecology & Environment, Inc. files - Logbook  
Sampling Activities Report  
Raw Data

		<b>POTENTIAL HAZARDOUS WASTE SITE SITE INSPECTION REPORT PART 7 - OWNER INFORMATION</b>		<b>I. IDENTIFICATION</b> 01 STATE 02 SITE NUMBER <i>UT</i> <i>D980952840</i>	
<b>II. CURRENT OWNER(S)</b>			<b>PARENT COMPANY (If applicable)</b>		
01 NAME <i>United Park City Mines Co.</i>		02 D+B NUMBER	08 NAME <i>NA</i>		09 D+B NUMBER
03 STREET ADDRESS (P.O. Box, RFD #, etc.) <i>309 Kearns Bldg.</i>		04 SIC CODE	10 STREET ADDRESS (P.O. Box, RFD #, etc.)		11 SIC CODE
05 CITY <i>Salt Lake City</i>	06 STATE <i>UT</i>	07 ZIP CODE <i>84101</i>	12 CITY		13 STATE
01 NAME		02 D+B NUMBER	08 NAME		09 D+B NUMBER
03 STREET ADDRESS (P.O. Box, RFD #, etc.)		04 SIC CODE	10 STREET ADDRESS (P.O. Box, RFD #, etc.)		11 SIC CODE
05 CITY	06 STATE	07 ZIP CODE	12 CITY		13 STATE
01 NAME		02 D+B NUMBER	08 NAME		09 D+B NUMBER
03 STREET ADDRESS (P.O. Box, RFD #, etc.)		04 SIC CODE	10 STREET ADDRESS (P.O. Box, RFD #, etc.)		11 SIC CODE
05 CITY	06 STATE	07 ZIP CODE	12 CITY		13 STATE
01 NAME		02 D+B NUMBER	08 NAME		09 D+B NUMBER
03 STREET ADDRESS (P.O. Box, RFD #, etc.)		04 SIC CODE	10 STREET ADDRESS (P.O. Box, RFD #, etc.)		11 SIC CODE
05 CITY	06 STATE	07 ZIP CODE	12 CITY		13 STATE
01 NAME		02 D+B NUMBER	08 NAME		09 D+B NUMBER
03 STREET ADDRESS (P.O. Box, RFD #, etc.)		04 SIC CODE	10 STREET ADDRESS (P.O. Box, RFD #, etc.)		11 SIC CODE
05 CITY	06 STATE	07 ZIP CODE	12 CITY		13 STATE
<b>III. PREVIOUS OWNER(S) (Last most recent first)</b>			<b>IV. REALTY OWNER(S) (If applicable: last most recent first)</b>		
01 NAME		02 D+B NUMBER	01 NAME		02 D+B NUMBER
03 STREET ADDRESS (P.O. Box, RFD #, etc.)		04 SIC CODE	03 STREET ADDRESS (P.O. Box, RFD #, etc.)		04 SIC CODE
05 CITY	06 STATE	07 ZIP CODE	05 CITY	06 STATE	07 ZIP CODE
01 NAME		02 D+B NUMBER	01 NAME		02 D+B NUMBER
03 STREET ADDRESS (P.O. Box, RFD #, etc.)		04 SIC CODE	03 STREET ADDRESS (P.O. Box, RFD #, etc.)		04 SIC CODE
05 CITY	06 STATE	07 ZIP CODE	05 CITY	06 STATE	07 ZIP CODE
01 NAME		02 D+B NUMBER	01 NAME		02 D+B NUMBER
03 STREET ADDRESS (P.O. Box, RFD #, etc.)		04 SIC CODE	03 STREET ADDRESS (P.O. Box, RFD #, etc.)		04 SIC CODE
05 CITY	06 STATE	07 ZIP CODE	05 CITY	06 STATE	07 ZIP CODE
<b>V. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)</b>					
<i>Ecology &amp; Environment, Inc. files</i>					

		<b>POTENTIAL HAZARDOUS WASTE SITE SITE INSPECTION REPORT PART 8 - OPERATOR INFORMATION</b>				<b>I. IDENTIFICATION</b>	
						01 STATE	02 SITE NUMBER
		UT		D980952840			
<b>II. CURRENT OPERATOR</b> (Provide if different from owner)				<b>OPERATOR'S PARENT COMPANY</b> (If applicable)			
01 NAME United Park City Mines, Co.		02 D+B NUMBER		10 NAME NA		11 D+B NUMBER	
03 STREET ADDRESS (P.O. Box, RFD #, etc.) 309 Kearns Bldg.		04 SIC CODE		12 STREET ADDRESS (P.O. Box, RFD #, etc.)		13 SIC CODE	
05 CITY Salt Lake City	06 STATE UT	07 ZIP CODE 84101		14 CITY	15 STATE	16 ZIP CODE	
08 YEARS OF OPERATION	09 NAME OF OWNER Same as above						
<b>III. PREVIOUS OPERATOR(S)</b> (List most recent first; provide only if different from owner)				<b>PREVIOUS OPERATORS' PARENT COMPANIES</b> (If applicable)			
01 NAME		02 D+B NUMBER		10 NAME		11 D+B NUMBER	
03 STREET ADDRESS (P.O. Box, RFD #, etc.)		04 SIC CODE		12 STREET ADDRESS (P.O. Box, RFD #, etc.)		13 SIC CODE	
05 CITY	06 STATE	07 ZIP CODE		14 CITY	15 STATE	16 ZIP CODE	
08 YEARS OF OPERATION	09 NAME OF OWNER DURING THIS PERIOD						
01 NAME		02 D+B NUMBER		10 NAME		11 D+B NUMBER	
03 STREET ADDRESS (P.O. Box, RFD #, etc.)		04 SIC CODE		12 STREET ADDRESS (P.O. Box, RFD #, etc.)		13 SIC CODE	
05 CITY	06 STATE	07 ZIP CODE		14 CITY	15 STATE	16 ZIP CODE	
08 YEARS OF OPERATION	09 NAME OF OWNER DURING THIS PERIOD						
01 NAME		02 D+B NUMBER		10 NAME		11 D+B NUMBER	
03 STREET ADDRESS (P.O. Box, RFD #, etc.)		04 SIC CODE		12 STREET ADDRESS (P.O. Box, RFD #, etc.)		13 SIC CODE	
05 CITY	06 STATE	07 ZIP CODE		14 CITY	15 STATE	16 ZIP CODE	
08 YEARS OF OPERATION	09 NAME OF OWNER DURING THIS PERIOD						
<b>IV. SOURCES OF INFORMATION</b> (Cite specific references, e.g., state files, sample analysis, reports)							
Ecology & Environment, Inc. files							

		POTENTIAL HAZARDOUS WASTE SITE SITE INSPECTION REPORT PART 9 - GENERATOR/TRANSPORTER INFORMATION		I. IDENTIFICATION	
				01 STATE	02 SITE NUMBER
				UT	0980952840
<b>II. ON-SITE GENERATOR</b>					
01 NAME <i>None</i>		02 D+B NUMBER			
03 STREET ADDRESS (P.O. Box, RFD #, etc.)		04 SIC CODE			
05 CITY		06 STATE	07 ZIP CODE		
<b>III. OFF-SITE GENERATOR(S)</b>					
01 NAME <i>None</i>		02 D+B NUMBER		01 NAME	
03 STREET ADDRESS (P.O. Box, RFD #, etc.)		04 SIC CODE		03 STREET ADDRESS (P.O. Box, RFD #, etc.)	
05 CITY		06 STATE	07 ZIP CODE	05 CITY	
01 NAME		02 D+B NUMBER		01 NAME	
03 STREET ADDRESS (P.O. Box, RFD #, etc.)		04 SIC CODE		03 STREET ADDRESS (P.O. Box, RFD #, etc.)	
05 CITY		06 STATE	07 ZIP CODE	05 CITY	
01 NAME		02 D+B NUMBER		01 NAME	
03 STREET ADDRESS (P.O. Box, RFD #, etc.)		04 SIC CODE		03 STREET ADDRESS (P.O. Box, RFD #, etc.)	
05 CITY		06 STATE	07 ZIP CODE	05 CITY	
<b>IV. TRANSPORTER(S)</b>					
01 NAME <i>Mr. Ray Wortey</i> *		02 D+B NUMBER		01 NAME	
03 STREET ADDRESS (P.O. Box, RFD #, etc.) <i>unknown</i>		04 SIC CODE		03 STREET ADDRESS (P.O. Box, RFD #, etc.)	
05 CITY		06 STATE	07 ZIP CODE	05 CITY	
01 NAME		02 D+B NUMBER		01 NAME	
03 STREET ADDRESS (P.O. Box, RFD #, etc.)		04 SIC CODE		03 STREET ADDRESS (P.O. Box, RFD #, etc.)	
05 CITY		06 STATE	07 ZIP CODE	05 CITY	
<b>V. SOURCES OF INFORMATION</b> (Cite specific references, e.g., state files, sample analysis, reports)					
<i>* allegedly removes tailings material for use as sewer line backfill and roadbase</i>					
<i>Ecology &amp; Environment, Inc. files - letter from Dale Parker, Utah SHWC to Eric Johnson, EPA</i>					




**POTENTIAL HAZARDOUS WASTE SITE  
SITE INSPECTION REPORT  
PART 10 - PAST RESPONSE ACTIVITIES**

**I. IDENTIFICATION**


01 STATE UT 02 SITE NUMBER D980952840

**II. PAST RESPONSE ACTIVITIES**

01 <input type="checkbox"/> A. WATER SUPPLY CLOSED 04 DESCRIPTION	02 DATE _____	03 AGENCY _____
<i>No recorded history</i>		
01 <input type="checkbox"/> B. TEMPORARY WATER SUPPLY PROVIDED 04 DESCRIPTION	02 DATE _____	03 AGENCY _____
<i>No</i>		
01 <input type="checkbox"/> C. PERMANENT WATER SUPPLY PROVIDED 04 DESCRIPTION	02 DATE _____	03 AGENCY _____
<i>No</i>		
01 <input type="checkbox"/> D. SPILLED MATERIAL REMOVED 04 DESCRIPTION	02 DATE _____	03 AGENCY _____
<i>No</i>		
01 <input type="checkbox"/> E. CONTAMINATED SOIL REMOVED 04 DESCRIPTION	02 DATE _____	03 AGENCY _____
<i>No</i>		
01 <input type="checkbox"/> F. WASTE REPACKAGED 04 DESCRIPTION	02 DATE _____	03 AGENCY _____
<i>No</i>		
01 <input type="checkbox"/> G. WASTE DISPOSED ELSEWHERE 04 DESCRIPTION	02 DATE _____	03 AGENCY _____
<i>No</i>		
01 <input type="checkbox"/> H. ON SITE BURIAL 04 DESCRIPTION	02 DATE _____	03 AGENCY _____
<i>No</i>		
01 <input type="checkbox"/> I. IN SITU CHEMICAL TREATMENT 04 DESCRIPTION	02 DATE _____	03 AGENCY _____
<i>No</i>		
01 <input type="checkbox"/> J. IN SITU BIOLOGICAL TREATMENT 04 DESCRIPTION	02 DATE _____	03 AGENCY _____
<i>No</i>		
01 <input type="checkbox"/> K. IN SITU PHYSICAL TREATMENT 04 DESCRIPTION	02 DATE _____	03 AGENCY _____
<i>No</i>		
01 <input type="checkbox"/> L. ENCAPSULATION 04 DESCRIPTION	02 DATE _____	03 AGENCY _____
<i>No</i>		
01 <input type="checkbox"/> M. EMERGENCY WASTE TREATMENT 04 DESCRIPTION	02 DATE _____	03 AGENCY _____
<i>No</i>		
01 <input type="checkbox"/> N. CUTOFF WALLS 04 DESCRIPTION	02 DATE _____	03 AGENCY _____
<i>No</i>		
01 <input checked="" type="checkbox"/> O. EMERGENCY DIKING/SURFACE WATER DIVERSION 04 DESCRIPTION	02 DATE _____	03 AGENCY _____
<i>A dam was built at the northwestern extremity of the tailings to contain the ponded water.</i>		
01 <input type="checkbox"/> P. CUTOFF TRENCHES/SUMP 04 DESCRIPTION	02 DATE _____	03 AGENCY _____
<i>No</i>		
01 <input type="checkbox"/> Q. SUBSURFACE CUTOFF WALL 04 DESCRIPTION	02 DATE _____	03 AGENCY _____
<i>No</i>		

	<b>POTENTIAL HAZARDOUS WASTE SITE SITE INSPECTION REPORT PART 10 - PAST RESPONSE ACTIVITIES</b>		<b>I. IDENTIFICATION</b>	
	01 STATE <i>CT</i>	02 SITE NUMBER <i>0980952840</i>		
<b>II PAST RESPONSE ACTIVITIES</b> <small>(Continued)</small>				
01 <input type="checkbox"/> R. BARRIER WALLS CONSTRUCTED 04 DESCRIPTION <i>No</i>	02 DATE _____	03 AGENCY _____		
01 <input type="checkbox"/> S. CAPPING/COVERING 04 DESCRIPTION <i>No</i>	02 DATE _____	03 AGENCY _____		
01 <input type="checkbox"/> T. BULK TANKAGE REPAIRED 04 DESCRIPTION <i>No</i>	02 DATE _____	03 AGENCY _____		
01 <input type="checkbox"/> U. GROUT CURTAIN CONSTRUCTED 04 DESCRIPTION <i>No</i>	02 DATE _____	03 AGENCY _____		
01 <input type="checkbox"/> V. BOTTOM SEALED 04 DESCRIPTION <i>No</i>	02 DATE _____	03 AGENCY _____		
01 <input type="checkbox"/> W. GAS CONTROL 04 DESCRIPTION <i>No</i>	02 DATE _____	03 AGENCY _____		
01 <input type="checkbox"/> X. FIRE CONTROL 04 DESCRIPTION <i>No</i>	02 DATE _____	03 AGENCY _____		
01 <input type="checkbox"/> Y. LEACHATE TREATMENT 04 DESCRIPTION <i>No</i>	02 DATE _____	03 AGENCY _____		
01 <input type="checkbox"/> Z. AREA EVACUATED 04 DESCRIPTION <i>No</i>	02 DATE _____	03 AGENCY _____		
01 <input type="checkbox"/> 1. ACCESS TO SITE RESTRICTED 04 DESCRIPTION <i>No</i>	02 DATE _____	03 AGENCY _____		
01 <input type="checkbox"/> 2. POPULATION RELOCATED 04 DESCRIPTION <i>No</i>	02 DATE _____	03 AGENCY _____		
01 <input type="checkbox"/> 3. OTHER REMEDIAL ACTIVITIES 04 DESCRIPTION <i>None</i>	02 DATE _____	03 AGENCY _____		
<b>III. SOURCES OF INFORMATION</b> <small>(Cite specific references. e.g., state files, sample analysis, reports)</small>				
<i>Ecology &amp; Environment, Inc. files</i>				



		<b>POTENTIAL HAZARDOUS WASTE SITE SITE INSPECTION REPORT PART 11 - ENFORCEMENT INFORMATION</b>		<b>I. IDENTIFICATION</b>	
				01 STATE	02 SITE NUMBER
				UT	0980952840
<b>II. ENFORCEMENT INFORMATION</b>					
01 PAST REGULATORY/ENFORCEMENT ACTION <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO					
02 DESCRIPTION OF FEDERAL, STATE, LOCAL REGULATORY/ENFORCEMENT ACTION					
<ul style="list-style-type: none"><li>- No agency enforcement action taken at this site.</li><li>- SI performed by State of Utah BSMW 12/21/84</li><li>- SI performed by EPA FITB 6,748/85</li></ul>					
<b>III. SOURCES OF INFORMATION</b> (Cite specific references, e.g., state files, sample analysis, reports)					
Ecology & Environment, Inc. files					



HAZARDOUS  
SITE CONTROL  
DIVISION

**Remedial  
Planning/  
Field  
Investigation  
Team  
(REM/FIT)**

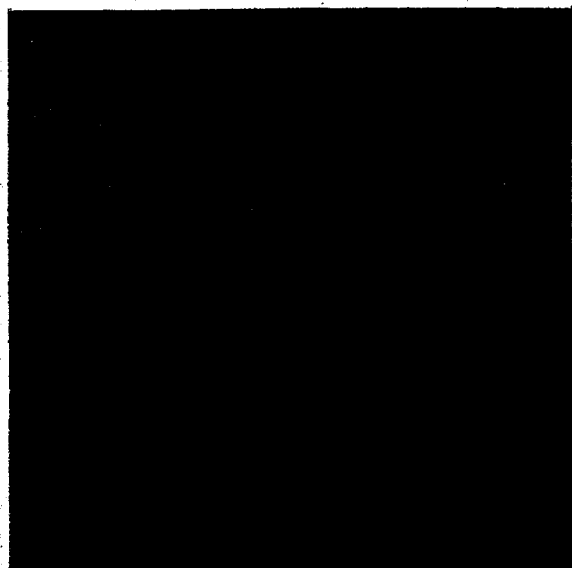
**ZONE II**

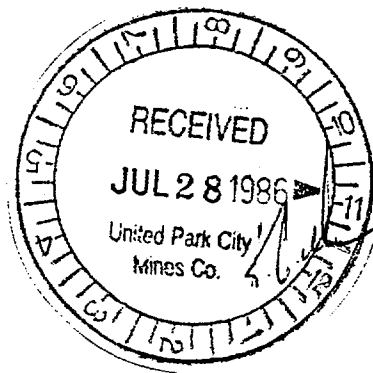
CONTRACT NO.  
68-01-6692

**CH<sub>2</sub>M HILL**

Ecology &  
Environment

EXHIBIT 15-D





AIR SAMPLING PLAN FOR  
RICHARDSON FLAT TAILINGS  
PARK CITY, UTAH

TDD R8-8605-12  
EPA ID# UTD980952840

EPA PROJECT OFFICER: KELCEY LAND  
E&E PROJECT OFFICER: HENRY SCHMELZER

REVIEWED BY: KARL FORD

SUBMITTED TO: KEITH SCHWAB, FIT-DPO  
WILLIAM GEISE, REM-FIT COORDINATOR

DATE SUBMITTED: JUNE 9, 1986  
DATE RESUBMITTED: JULY 15, 1986

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AIR SAMPLING PLAN FOR  
RICHARDSON FLAT TAILINGS  
PARK CITY, UTAH  
TDD #R8-8605-12

I. INTRODUCTION AND OBJECTIVES

Under the provisions of Technical Directive Document (TDD) R8-8605-12, Region VIII, U.S. Environmental Protection Agency (EPA) tasked Ecology and Environment, Inc. Field Investigation Team (E&E FIT) to prepare an air sampling plan for Richardson Flat Tailings, Park City, Utah (Figure 1).

This sample plan has been prepared to satisfy in part the requirements of the above referenced TDD and is designed to insure the objectives of the field investigation are met in a cost effective, timely and safe manner. This sample plan conforms to the requirements established in the Quality Assurance Handbook for Air Pollution Measurement Systems, Volume II - Ambient Air Specific Methods; EPA - 600/4-77-027A, May, 1977; U.S. EPA, Research Triangle Park, N.C., 40 CFR Part 58, July, 1983, and the Region VIII FIT SOP for High Vol Air Sampling at Hazardous Waste Sites, prepared under TDD #R8-8408-02.

The overall scope of this project involves the set-up and operation of six high-volume air samplers at five pre-determined locations around the study area and collection of thirty samples for heavy metals and five samples for respirable particulate analysis over approximately a one week period. A summary of sample location, rationale and parameters to be measured is located in Table 1.

The objective of this investigation is to determine if air route migration of heavy metal contaminated suspended particulate matter exists, and to document such a release using quantitative air sampling techniques.

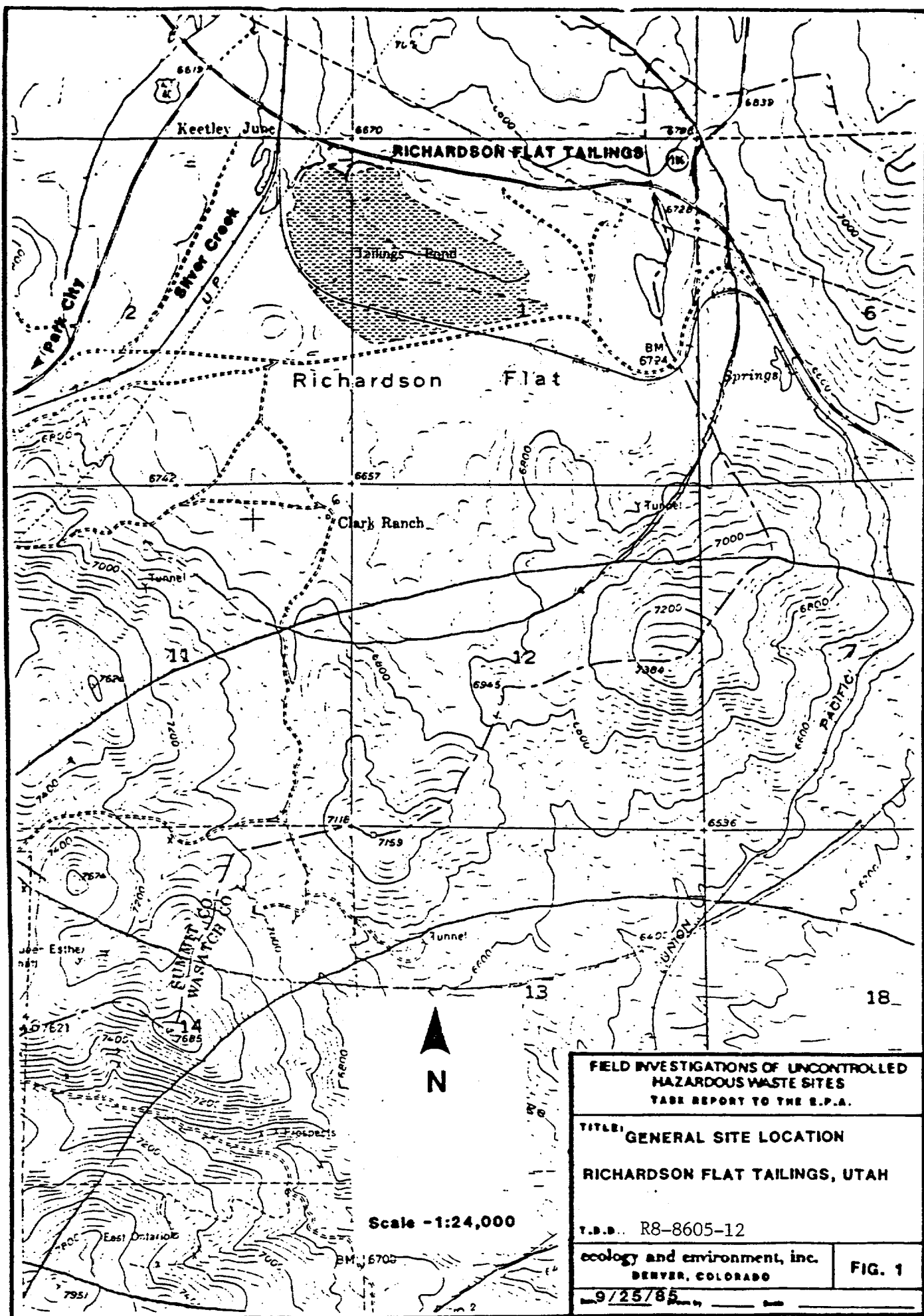


TABLE 1  
SAMPLE TYPES, PARAMETERS, LOCATIONS AND RATIONALES

Sampler Number	Location	Rationale	Parameters
RF-AM-01	0.5 miles south of site.	Distant background sample.	Arsenic, Cadmium, Lead & Zinc
RF-AM-02	East side of tailings area.	Document airborne contaminants blown to the east of the tailings.	Arsenic, Cadmium, Lead & Zinc
RF-AM-03	Same as RF-AM-02.	A duplicate of RF-AM-02 for quality control purposes.	Arsenic, Cadmium, Lead & Zinc
RF-AM-04	Northwest side of tailings area and southwest of the dam.	Document airborne contaminants blown to the northwest of the tailings.	Arsenic, Cadmium, Lead & Zinc
RF-AM-05	Same as RF-AM-04.	Document the respirable portion of the particulate fraction blown off-site from the tailings.	Arsenic, Cadmium, Lead & Zinc
RF-AM-06	Southwest side of tailings area.	Document airborne contaminants blown to the southwest of the tailings.	Arsenic, Cadmium, Lead & Zinc
Met	Between railroad tracks and south border of tailings.	Collect meteorological data during sampling activities.	Wind direction, wind speed, relative humidity and barometric pressure



## II. SITE DESCRIPTION

Richardson Flat Tailings is located in Summit County, Utah approximately 3.5 miles northeast of Park City. The tailings cover approximately 160 acres in the NW 1/4, Section 1, Township 2 South, Range 4 East (Figure 1). Highway 40 runs east and north of the area, and a Union Pacific Railroad track bisects the southern portion of the tailings. Silver Creek is located approximately 500 feet from the northwestern most extension of the tailings. An intermittent stream (water diversion ditch) forms the southeastern border of the tailings. An ephemeral pond overlies the northeastern portion of the tailings, and is contained by a dam at the northwestern end.

## III. SITE HISTORY

The mill tailings at Richardson Flat came from the Keetley Ontario Mine and other metal mines currently owned by United Park City Mines (UPCM). The most recent use of the area for tailings disposal was during the period of time from 1975 to 1981. During this time, UPCM had all its mining properties leased to either Park City Ventures or Noranda Mining, Inc. who constructed and operated milling facilities on UPCM property.

It is estimated that at least seven million tons of tailings were deposited on Richardson Flat. While there is no current dumping of tailings on site, Mr. Ray Wortley is leasing the tailings from UPCM to use for sewer line and road base backfill.

The site is not secured in any way from public access. An unpaved road along the southern boundary of the tailings is unrestricted. Cattle and sheep are grazed in the area, and cattle have been observed walking across the tailings.

#### IV. METEOROLOGY

The data presented in the following section was acquired from The Climatic Atlas of the United States, U.S. Department of Commerce, Environmental Sciences Services-Administration, Environmental Data Service, June 1968. The climate of the Park City area is characterized by moderate fluctuations in temperature and precipitation throughout the year. Mean monthly temperatures range from 10 degrees Fahrenheit (°F) in December, January, and February to 80°F in June, July and August. During the month of July (for which this sampling trip is scheduled) the average temperature is approximately 60°F. Precipitation for the Park City area varies from a mean monthly amount of 1.00 inches in July to 2.22 inches in December. Prevailing wind direction at Park City is typically from a southeasterly direction throughout the year. The meteorological station will be operated at the site for two days prior to initiating sample collection. The data collected will be used to determine the primary wind direction at the site and to establish temperature and barometric pressure for calibration. Relative humidity for the Park City area varies from 40 percent in August to 80 percent in December and February. The average relative humidity in July is 50 percent. Barometric pressure ranges from 1022 millibars (30.18 inches of mercury) in December and January to approximately 1010 millibars (29.83 inches of mercury) in June.

On June 20, 1985, clouds of fugitive dust were photographed moving offsite as a result of strong winds from the west-northwest. In May, 1985, FIT observed the wind direction to be from the southwest. Results of analyses of surface tailings samples showed concentrations as high as 3,600 ppm arsenic, 80 ppm cadmium, 8,530 ppm lead, and 6,360 ppm zinc. Mean soil concentrations for those metals in the western U.S. respectively are 5.5 ppm, 0.2 ppm, 17 ppm, and 55 ppm.

The Richardson Flat tailings lie in a small flat topographic basin of approximately 800 acres which is drained by Silver Creek. The configuration of the basin is likely to have a pronounced effect on local air flow. The basin is situated at 6600 feet elevation and

is surrounded by ridges of the Wasatch Mountains that range from 6700 feet to 7600 feet. Silver Creek enters the basin from the west-southwest then angles to the north, hence an upvalley air flow would likely traverse the site and continue northward. This is consistent with the May, 1985 observation of wind-direction.

## V. FIELD PROCEDURES

### A. CONCEPT OF OPERATIONS

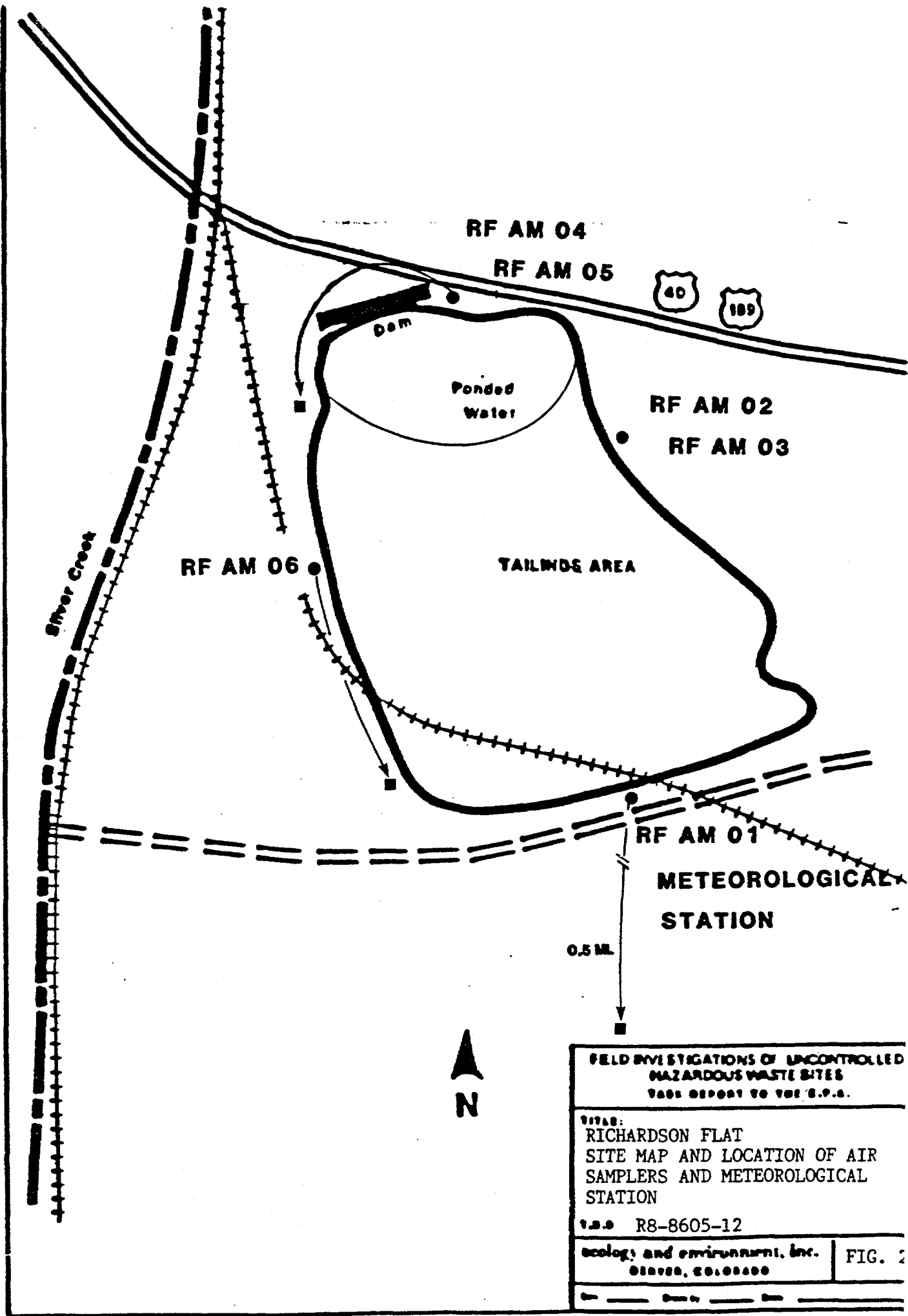
The sampling program is scheduled to begin on or about July 7, 1986 and continue until July 14. The Field Investigation Team will consist of the following E&E personnel:

Henry Schmelzer - Project Officer/Air Sampling Specialist  
Dave Franzen - Site Safety Officer/Air Sampling Specialist

### B. SAMPLING LOCATIONS

All high-volume air sampling units will be set up in strategic locations adjacent to the study area (Figure 2). Four sampling locations will be used and include one respirable particulate and one duplicate sample location for quality assurance purposes. All proposed sampling sites will be located twenty to thirty feet or greater from the tailings in accordance with siting criteria established in 40 CFR Part 58, Appendix E.

Sample location RF-AM-01 will be located approximately 0.5 miles south of the tailings area and will serve as a distant background sample. Prevailing winds historically blow from the southeast. Sampler location RF-AM-02 will be located on the east side of the tailings area. Sampler RF-AM-03, which is a quality control duplicate, will also be located here. Sampler RF-AM-04 will be located on the northwest side of the tailings area, southeast of the dam. Sampler RF-AM-05 with the PM-10 respirable head will also be located here. Sampler RF-AM-06 will be located on the southwest side of the tailings area.



As specified by the FIT SOP V-1, sampler inlets will be elevated to two meters above ground surface in the breathing zone. Electrical power is not available at the site, consequently, portable unleaded gasoline-powered generators will be used to supply power at each of the four sampling sites. The generators will be located approximately fifty feet upwind from each sampler.

The meteorological station will be located on the south side of the tailings area by the railroad tracks and between the tailings and the gravel road. Barometric pressure, temperature, wind speed and direction will be recorded by the meteorological station. Wind direction data will be used to determine which of the three samplers located adjacent to the site are upwind and downwind of the site. During each twelve hour sampling period temperature and barometric pressure are required to convert flow-rate to conditions at STP.

The meteorological data will be representative of conditions on site during the period of sampling. Radical changes in wind direction data will be taken into account when designating the appropriate upwind sampler location. Precipitation measurements are not needed for data calculations, however, samples will not be collected during extended periods of precipitation (i.e., 24 hours). Tailings dust is expected to blow from the site over a five day period even when precipitation occurs occasionally. Frequency and duration of precipitation, and changes in meteorological conditions will be noted in the field logbook.

No railroad-associated contaminants are expected, however, any dust produced by train passage will be noted in the field logbook. The frequency of train passage will also be noted.

The potential for roadway lead contaminants from Highway 40 will be accounted for by taking three soil samples perpendicular to the highway at 0.25 to 0.5 miles from the site.

The potential for dust contamination from the gravel road which parallels the southern boundary of the site will be solved by locating RFAM-1 0.5 miles south of the site as a distant background sampler. Frequency of vehicle passage on the road will be noted.

Based on information obtained during past site visits, no obstructions by vegetation are anticipated. The tailings material supports little to no vegetation and the surrounding area is predominated by semi-desert shrubs and forbs. As specified in 40 CFR, Part 58, Appendix E and SOP IV-1 samplers will be located at least twenty meters from any trees or other obstructions which might be present.

#### C. COORDINATION

Coordination for site access will be maintained with UPCM, Susan Kennedy of E&E, Inc. and Kelcey Land of the Region VIII EPA Superfund group.

#### D. FIELD SAFETY

An approved Site Safety Plan for this project will be developed prior to the execution of the sampling plan.

#### E. PROJECT SCHEDULE

The tentative project dates are as follows:

July 7	-- Travel to Salt Lake City, Utah
July 8	-- Set up sampling locations at Richardson Flat
July 9-13	-- Sample
July 14	-- End sampling, take down samplers

## F. CONTROL OF CONTAMINATED MATERIALS

Air sampling activities will take place off-site, and such sampling is not expected to generate any contaminated materials.

## VI. LOGISTICS

All safety and operational equipment necessary to conduct this investigation is currently available by FIT VIII. One inhalable particulate (<10 microns) sampler head will be used in this project. All equipment will be transported in a FIT vehicle. Samples will be delivered to EPA Region VIII Laboratory or an approved CLP lab for analysis. If a CLP laboratory is used, FIT will provide a Special Analytical Services request stating the method, detection limits and quality assurance criteria.

## VII. QUALITY CONTROL

### A. SAMPLE METHODS

Prior to sampling, all equipment will be thoroughly inspected to insure it is functioning properly. Each high volume unit will be calibrated, and flow will be set using an orifice calibration unit in the field. Barometric pressure, temperature, wind speed and direction will be recorded by the meteorological station.

Samples will be collected for twelve hours (8-9 a.m. to 8-9 p.m.) for five consecutive days, weather permitting. The samples will be collected on cellulose filters. Stainless steel filter cartridges with covers will be used to handle filters and facilitate changing.

Samples will be analyzed for arsenic, cadmium, lead and zinc content. A detection limit of 1.0 part per billion (ppb) will be used by the laboratory when analyzing for the above constituents.

TABLE 2

## SAMPLE PLAN CHECK LIST

Site Name: Richardson Flat Tailings

REGION VIII

TDD Number: R8-8605-12Address: Highway 40, Keetley JunctionProject Team Leader: Henry SchmelzerCity: Park City County: SummitSampling Date: July 7 to 11, 1986

Sample Location	Sample Type	Field Parameters					Laboratory Parameters														
		Temp	pH	Cond	DO	Special	Task 1&2 * Metals	Task 3 Cyanide	Task3 Sulfide	Task3 Ammonia	Special Arsenic	Special NO3&NO2	Special Inorganic	VOC	B/N/A Extract	Pesticide	Special Organic	Split	Dup	Split	Blank
RF-AM-01	Air						X														Background
RF-AM-02	Air						X														
RF-AM-03	Air						X												X		
RF-AM-04	Air						X														
RF-AM-05	Air						X														Respirable
RF-AM-06	Air						X														
						Samples will be collected at each location for 5 days.															

\* Arsenic, cadmium, lead and zinc only.



The hi-vol units will be positioned two meters off the ground at the chosen sampling locations. Each unit will be operated at a pre-set flow rate (40 cubic feet per minute) for twelve hours. The filter will then be removed as quickly as possible, folded lengthwise so that only surfaces with collected particulates are in contact, and catalogued in a manila folder. All necessary data will be fully documented. The folders will be placed in envelopes and submitted for chemical analysis. The samples will be analyzed by ICP scan.

Only one PM10 respirable head sampler is available to FIT in Region VIII. The PM10 sample will aid in evaluating overall health effects. Due to the fact that sample weight will not be collected, the metal concentration in the PM10 fraction and the total particulate fraction cannot be compared with one another.

Quality control of documentation, filter handling and submission, chain of custody, calibration and unit maintenance will be in accordance with the previously cited FIT SOP and quality assurance will be strictly maintained.

The field blanks, one for each sampling day, and two blank filters designated "laboratory spike" will be included as part of the laboratory QA/QC procedure. All filters will be from one lot number.

All applicable quality assurance requirements for Prevention of Significant Deterioration (PSD) Air Monitoring as defined in 40 CFR Part 58, Appendix B, and Section No. 2.2.8. of the "Quality Assurance Handbook for Air Pollution Measurement Systems, Volume II - Ambient Air Specific Methods," will be implemented for this program.

#### B. CHAIN OF CUSTODY

Chain of custody procedures as prescribed by the NEIC will be strictly adhered to throughout the sampling program.

#### VIII. SAMPLING REPORT

Upon completion of the sampling program, a report of sampling activities will be submitted to the EPA Region VIII. Upon receipt of the analytical data, an Analytical Results Report will be prepared under a separate TDD.

SITE INSPECTION REPORT  
RICHARDSON'S FLAT TAILINGS

SUBMITTED TO:

Eric Johnson, EPA Region VIII

*State file*

Submitted by:

Don Verbica  
Utah Division of Environmental Health  
Bureau of Solid and Hazardous Waste

August 30, 1984

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APPENDIX 3 - SAMPLE ANALYSIS SHEETS

APPENDIX 4 - HRS WORKSHEET

Scott M. Matheson  
Governor



James O. Mason, M.D., Dr.P.H.  
Executive Director  
801-533-6111

DIVISIONS

Community Health Services  
Environmental Health  
Family Health Services  
Health Care Financing

OFFICES

Administrative Services  
Community Health Nursing  
Management Planning  
Medical Examiner  
State Health Laboratory

STATE OF UTAH  
DEPARTMENT OF HEALTH  
DIVISION OF ENVIRONMENTAL HEALTH  
150 West North Temple, P.O. Box 2500, Salt Lake City, Utah 84110-2500

Kenneth Lee Alkema, Director  
Room 474 801-533-6121

September 4, 1984

Mr. Eric Johnson  
U.S. Environmental Protection Agency  
Region VIII  
1860 Lincoln Street  
Denver, Colorado 80295

Subject: Site inspection report, Richardson's Flat tailings,  
Summit County, Utah

Dear Mr. Johnson:

Submitted herewith is a site inspection report for the Richardson's Flat tailings.

Based upon information available at the time this inspection was prepared, it is recommended that this site be given National Priority List Consideration. It is further recommended that the FIT take HiVol samples to score the route for air.

Richardson Flat tailings are located in the NW 1/4 of section 1, T25, R4E, of the Park City East, Quadrangle, between Park City and Keetley Junction. The exact amount of tailings on-site is unknown. But it is estimated that there are approximately 7 million tons of tailings most likely deposited in the late 60's and early 70's.

The mill tailings at Richardson's Flat came from the Ontario Keetley mine and other mines owned by United Park City Mines. The tailings are next to Silver Creek and numerous small tributaries flow through the tailings.

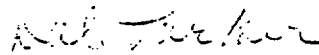
Mr. Ray Wortley is currently leasing part of the tailings from United Park City Mines and is using the tailings as backfill for sewer lines and roadbase.

During the June inspection samples were taken from groundwater, surface water and tailings. Groundwater concentrations of arsenic at .325 ppm, cadmium at .120 ppm, lead at 31.8 ppm and mercury at 0.26 ppm were found in a spring below Richardson's Flat. It was observed during the inspection that tailings were being blown off-site. It is recommended that EPA's FIT collect HiVol samples downgradient of Richardson's Flat.

The score given Richardson's Flat without the route for air is 36.19, but the state feels with the route for air added it would increase the score.

If you have any questions, please contact Don Verbica.

Sincerely,



Dale D. Parker, Ph.D.  
Executive Secretary  
Utah Solid and Hazardous Wastes  
Committee

DGV/ab  
5678

APPENDIX 1  
PHOTOGRAPHS



Photo #1: Ponded water on Richardson's flat tailings



Photo #2: Tailings being blown off-site during a wind storm.



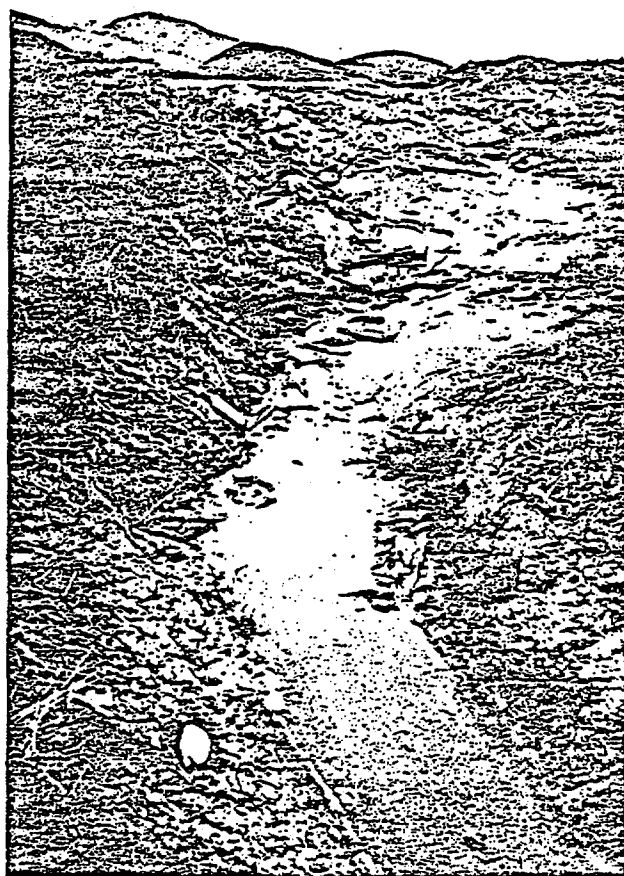


Photo #3: Discolored water in canal made of tailings near Richardson's Flat

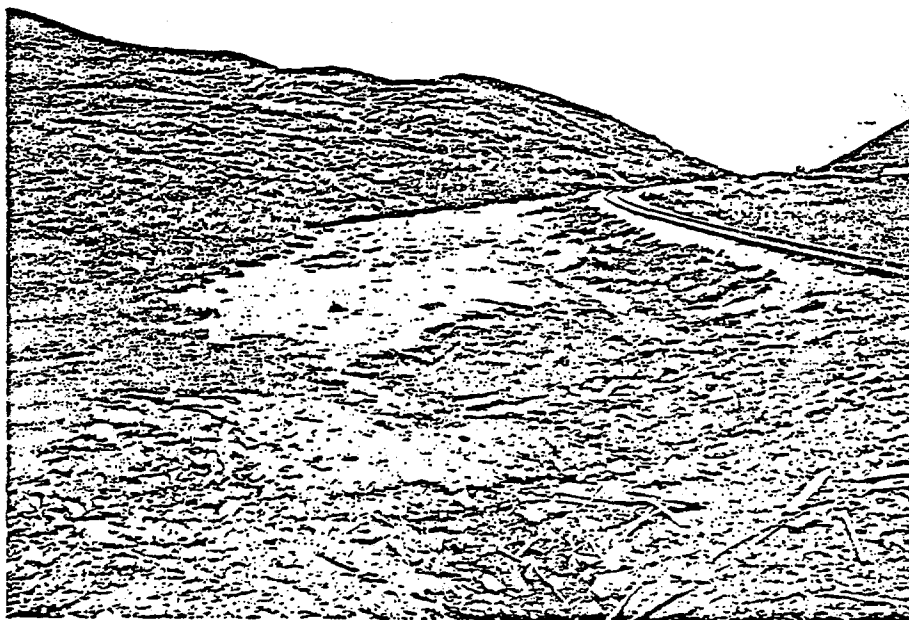


Photo #4: Tailings above Richardson's Flat near Silver Creek.

← SALT LAKE CITY

Richardson's Flat ↑ N  
SITE Drawing  
NOT TO SCALE

• = SAMPLE LOCATION



STATE OF UTAH  
DEPARTMENT OF HEALTH

Bureau of Solid and Hazardous Waste  
Division of Environmental Health

150 W. N. Temple, Salt Lake City, Utah 84103  
801-533-4145

OFF SITE SOIL  
• HW84143

Downy (Pond) water  
• HW84140  
Tailings Dam

Surface Water

Ponded

• HW84142  
Tailings

• HW84139  
Standing Surface Water

Tailings Pond

• HW84141  
Tailings

• HW84145  
Surface Water

• HW84138  
Surface Water

UP-graded  
Surface Water  
• HW84135

SPRING

CLARK (Pond)  
(Foundation)

• HW84137  
Concrete Soil

• HW84136



APPENDIX 2  
SITE INSPECTION FORM

EPA

POTENTIAL HAZARDOUS WASTE SITE  
SITE INSPECTION REPORT

## PART 1 - SITE LOCATION AND INSPECTION INFORMATION

## I. IDENTIFICATION

01 STATE 02 SITE NO.

## II. SITE NAME AND LOCATION

01 SITE NAME (Legal, common or descriptive name of site)

Richardson's Flat Tailings

02 STREET, ROUTE NO. OR SPECIFIC LOCATION IDENTIFIER

NW 1/4 Sec 1 T25 R4E

03 CITY

Park City East Quadrangle

04 STATE 05 ZIP CODE 06 COUNTY

Utah

Summit

07 COUNTY CODE

043

08 CONG DIST.

3

09 COORDINATES

LATITUDE

40 40 42.\_

LONGITUDE

111 27 05.\_

10 TYPE OF OWNERSHIP (Check one)

X A. PRIVATE

B. FEDERAL:

C. STATE

D. COUNTY

E. MUNICIPAL

F. OTHER:

G. UNKNOWN

## III. INSPECTION INFORMATION

01 DATE OF INSPECTION

06/04/84

02 SITE STATUS

A. ACTIVE

X B. INACTIVE

03 YEARS OF OPERATION

BEGINNING YEAR

ENDING YEAR

UNKNOWN

01 AGENCY PERFORMING INSPECTION (Check all that apply)

A. EPA B. EPA CONTRACTOR

C. MUNICIPAL

D. MUNICIPAL CONTRACTOR

(Name of Firm)

(Name of Firm)

X E. STATE F. STATE CONTRACTOR

G. OTHER:

(Name of Firm)

(Specify)

05 CHIEF INSPECTOR

Don Verbica

06 TITLE

Geologist

07 ORGANIZATION

UBSHW

08 TELEPHONE NO.

(801)533-4145

09 OTHER INSPECTORS

Joel Heddon

10 TITLE

Engr. Geologist

11 ORGANIZATION

UBSHW

12 TELEPHONE NO.

(801)533-4145

13 SITE REPRESENTATIVES INTERVIEWED 14 TITLE 15 ADDRESS

16 TELEPHONE NO.

17 ACCESS GAINED BY

(Check one)

PERMISSION

WARRANT

18 TIME OF INSPECTION

10:00 a.m.

19 WEATHER CONDITIONS

overcast and warm

## IV. INFORMATION AVAILABLE FROM

01 CONTACT

Don Verbica

02 OF (Agency/Organization)

BSHW/USHD

03 TELEPHONE NUMBER

(801)533-4145

04 PERSON RESPONSIBLE FOR SITE INSPECTION FORM

Dale Parker

05 AGENCY

BSHW

06 ORGANIZATION

USHD

07 TELEPHONE NO.

(801)533-4145

08 DATE

09/04/84

EPA FORM 2070-13(7-81)

POTENTIAL HAZARDOUS WASTE SITE  
SITE INSPECTION REPORT  
PART 2 - WASTE INFORMATION

I. IDENTIFICATION  
01 STATE 02 SITE NO.

II. WASTE STATES, QUANTITIES, AND CHARACTERISTICS

01 PHYSICAL STATES (Check all that apply)

- A. SOLID E. SLURRY  
B. POWDER, FINES F. LIQUID  
C. SLUDGE G. GAS  
D. OTHER \_\_\_\_\_  
(Specify)

02 WASTE QUANTITY AT SITE  
(Measures of waste quantities  
must be independent)

\* TONS 7 million  
CUBIC YARDS \_\_\_\_\_  
NO. OF DRUMS \_\_\_\_\_

03 WASTE CHARACTERISTICS (Check all that apply)

- X A. TOXIC X E. SOLUBLE I. HIGHLY VOLATILE  
B. CORROSIVE F. INFECTIOUS J. EXPLOSIVE  
C. RADIOACTIVE G. FLAMMABLE K. REACTIVE  
X D. PERSISTENT H. IGNITABLE L. INCOMPATIBLE  
M. NOT APPLICABLE

III. WASTE TYPE

CATEGORY	SUBSTANCE NAME	01 GROSS AMOUNT	02 UNIT OF MEASURE	03 COMMENTS
SLU	SLUDGE			
OLW	OILY WASTE			
SOL	SOLVENTS			
PSD	PESTICIDES			
OCC	OTHER ORGANIC CHEMICALS			
IOC	INORGANIC CHEMICALS	unknown	As	
ACD	ACIDS			
BAS	BASES			
MES	HEAVY METALS	unknown	Pb, Cd	

IV. HAZARDOUS SUBSTANCES (See Appendix for most frequently cited CAS Numbers)

01 CATEGORY	02 SUBSTANCE NAME	03 CAS NUMBER	04 STORAGE/ DISPOSAL METHOD	05 CONCENTRATION	06 MEASURE OF CONCENTRATION
MES	Lead	999	SI	31.8 ppm ground water	(total metals)
MES	cadmium	999	SI	.120 ppm ground water	(total metals)
IOC	arsenic	999	SI	.40 ppm ground water	(total metals)
MES	lead	999	Tailings sample	3960 ppm	(total metals)
IOC	arsenic	999	tailings sample	252 ppm	(total metals)
MES	cadmium	999	tailings sample	447 ppm	(total metals)
MES	mercury	999	tailings sample	124 ppm	(total metals)

V. FEEDSTOCKS (See Appendix for CAS Numbers)

CATEGORY	01 FEEDSTOCK NAME	02 CAS NUMBER	CATEGORY	01 FEEDSTOCK NAME	02 CAS NUMBER
FDS			FDS		
FDS			FDS		
FDS			FDS		

VI. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

sample analysis, state files

EPA

POTENTIAL HAZARDOUS WASTE SITE  
SITE INSPECTION REPORT  
PART 3 - SITE INFORMATION AND ASSESSMENT

I. IDENTIFICATION  
01 STATE 02 SITE NO.

---

II. HAZARDOUS CONDITIONS AND INCIDENTS

---

01 A. GROUNDWATER CONTAMINATION 02 OBSERVED (DATE: \_\_\_\_\_) X POTENTIAL  
03 POPULATION POTENTIALLY AFFECTED: 10,000<sup>1</sup>\* ALLEGED  
04 NARRATIVE DESCRIPTION

Potential exists for the contamination of groundwater. The tailings lie next to Silver Creek and sit on top of old stream sediments (sands and clays). The water table is relatively high due to Silver Creek. The tailings are porous and could be leached, the resulting leachate could migrate into the groundwater.

---

01 B. SURFACE WATER CONTAMINATION 02 OBSERVED (DATE: \_\_\_\_\_) X POTENTIAL  
03 POPULATION POTENTIALLY AFFECTED: 10,000<sup>1</sup>\* ALLEGED  
04 NARRATIVE DESCRIPTION

Potential exists for the contamination of surface water. Many small tributaries of Silver Creek flow through the tailings and from a pond. Silver Creek lies due west of the site and could be effected by any leachate forming on the tailings.

---

01 C. CONTAMINATION OF AIR 02 OBSERVED (DATE: \_\_\_\_\_) X POTENTIAL ALLEGED  
03 POPULATION POTENTIALLY AFFECTED: 10,000<sup>2</sup>\* 04 NARRATIVE DESCRIPTION

Potential exists for contamination of air. The tailing consists of small particles that are easily air borne. Pictures taken of site show tailings blowing off-site. The tailings contain lead and cadmium which could be harmful if ingested.

---

01 D. FIRE/EXPLOSIVE CONDITIONS 02 OBSERVED (DATE: \_\_\_\_\_) POTENTIAL  
03 POPULATION POTENTIALLY AFFECTED: \_\_\_\_\_ ALLEGED  
04 NARRATIVE DESCRIPTION  
Not applicable

---

01 E. DIRECT CONTACT 02 OBSERVED (DATE: \_\_\_\_\_) X POTENTIAL ALLEGED  
03 POPULATION POTENTIALLY AFFECTED: 950<sup>3</sup> 04 NARRATIVE DESCRIPTION

Potential exists for direct contact. There is no fence or guard to prevent people from entering the tailings pond.

---

01 F. CONTAMINATION OF SOIL 02 OBSERVED (DATE: \_\_\_\_\_) X POTENTIAL ALLEGED  
03 AREA POTENTIALLY AFFECTED: 100 04 NARRATIVE DESCRIPTION

Potential exists for contamination of soil. The tailings are porous and so is the surround soil. The soil has been in continuous contact with the tailings for a number of years. Any leachate formed by the tailings could have contaminated the soil.

---

01 G. DRINKING WATER CONTAMINATION 02 OBSERVED (DATE: \_\_\_\_\_) POTENTIAL  
03 POPULATION POTENTIALLY AFFECTED: 10,000<sup>1</sup> ALLEGED  
04 NARRATIVE DESCRIPTION

Potential exists for contamination of drinking water by the migration of leachate.

---

01 H. WORKER EXPOSURE/INJURY 02 OBSERVED (DATE: \_\_\_\_\_) POTENTIAL ALLEGED  
03 WORKERS POTENTIALLY AFFECTED: 0 04 NARRATIVE DESCRIPTION

Mr. Ray Wortley has a lease on the mine tailings and is removing them for use in construction. A few workers load the tailings into dump trucks on-site. These workers could be affected if the tailings are harmful.

---

01 I. POPULATION EXPOSURE/INJURY 02 OBSERVED (DATE: \_\_\_\_\_) POTENTIAL ALLEGED  
03 POPULATION POTENTIALLY AFFECTED: 950<sup>3</sup> 04 NARRATIVE DESCRIPTION

The nearest large population is Park City which is approx. 2 miles from site. There is no means on-site to prevent direct access by the local population.

---

EPA FORM 2070-13(7-81)1 = 3 mile radius; 2 = 4 mile radius; 3 = 1 mile radius

\*Population of Park City is 10,000

EPA

POTENTIAL HAZARDOUS WASTE SITE  
PRELIMINARY ASSESSMENT  
PART 3 - SITE INFORMATION AND ASSESSMENT

I. IDENTIFICATION  
01 STATE 02 SITE NO.

II. HAZARDOUS CONDITIONS AND INCIDENTS (Continued)

01 J. DAMAGE TO FLORA 02 OBSERVED (Date: \_\_\_\_\_) X POTENTIAL ALLEGED

04 NARRATIVE DESCRIPTION

Potential exists for damage to Flora. Grass and shrubs will not grow on the mine tailings.

01 K. DAMAGE TO FAUNA 02 OBSERVED (DATE: \_\_\_\_\_) X POTENTIAL ALLEGED

04 NARRATIVE DESCRIPTION

Potential exists for damage to fauna. Beaver and muskrats live near the site on Silver Creek. Silver Creek is a 3A (water quality) stream, it is a tributary of the Weber River which is a trout stream.

01 L. CONTAMINATION OF FOOD CHAIN 02 OBSERVED (DATE: \_\_\_\_\_) POTENTIAL

04 NARRATIVE DESCRIPTION

ALLEGED

Potential exists for contamination of food chain (grass and roots) of beaver and muskrats that live and eat on Silver Creek. Crops that are irrigated by Silver Creek could also be contaminated.

01 M. UNSTABLE CONTAINMENT OF WASTES 02 OBSERVED (Date: \_\_\_\_\_) POTENTIAL

(Soils/runoff/standing liquids/leaking drums)

ALLEGED

03 POPULATION POTENTIALLY AFFECTED: 950<sup>3</sup>

04 NARRATIVE DESCRIPTION

Potential exists for unstable containment of waste. Tailings have been observed blowing off-site.

01 N. DAMAGE TO OFFSITE PROPERTY 02 OBSERVED (DATE: \_\_\_\_\_) POTENTIAL

04 NARRATIVE DESCRIPTION

ALLEGED

It is alleged that off-site property is being contaminated. Tailings were found on the north side of the highway and they most likely came from Richardson's Flat.

01 O. CONTAMINATION OF SEWERS, STORM DRAINS, WWTPs 02 OBSERVED (DATE: \_\_\_\_\_)

04 NARRATIVE DESCRIPTION

POTENTIAL

ALLEGED

Unknown at the time this assessment was made.

01 P. ILLEGAL/UNAUTHORIZED DUMPING 02 OBSERVED (DATE: \_\_\_\_\_) POTENTIAL

04 NARRATIVE DESCRIPTION

ALLEGED

Unknown at the time this assessment was made.

05 DESCRIPTION OF ANY OTHER KNOWN, POTENTIAL OR ALLEGED HAZARDS

III. TOTAL POPULATION POTENTIALLY AFFECTED:

IV COMMENTS

State files

V. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)



EPA

POTENTIAL HAZARDOUS WASTE SITE  
SITE INSPECTION  
PART 4 - PERMIT AND DESCRIPTIVE INFORMATIONI. IDENTIFICATION  
01 STATE 02 SITE NO.

## II. PERMIT INFORMATION

01 TYPE OF PERMIT ISSUED 02 PERMIT NO. 03 DATE ISSUED 04 EXPIRATION DATE 05 COMMENTS

A. NPDES

B. UIC

C. AIR

D. RCRA

E. RCRA INTERIM STATUS

F. SPCC PLAN

G. STATE (Specify)

H. LOCAL (Specify)

I. OTHER (Specify)

J. NONE

No records of any permits in state files

## III. SITE DESCRIPTIONS

01 STORAGE/DISPOSAL

02 AMOUNT

03 UNIT OF MEASURE

04 TREATMENT

(Check all that apply)

(Check all that apply)

A. SURFACE IMPOUNDMENT

B. PILES

C. DRUMS, ABOVE GROUND

D. TANK, ABOVE GROUND

E. TANK, BELOW GROUND

F. LANDFILL

G. LANDFARM

H. OPEN DUMP

I. OTHER Mill tailings pond FM

(Specify)

A. INCINERATION

B. UNDERGROUND INJECTION

C. CHEMICAL/PHYSICAL

D. BIOLOGICAL

E. WASTE OIL PROCESSING

F. SOLVENT RECOVERY

G. OTHER RECYCLING/RECOVERY

H. OTHER

(Specify)

05 OTHER

A. BUILDINGS ON SITE

none

06 AREA OF SITE

100 (Acres)

07 COMMENTS

## IV. CONTAINMENT

01 CONTAINMENT OF WASTES (Check one)

A ADEQUATE, SECURE B MODERATE X C INADEQUATE, POOR D INSECURE, UNSOUND, DANGEROUS

02 DESCRIPTION OF DRUMS, DIKING, LINERS, BARRIERS, ETC.

It was observed during the June inspection that tailings were being blown off-site.

## V. ACCESSIBILITY

01 WASTE EASILY ACCESSIBLE: X YES NO

02 COMMENTS The site is easily accessible. There is no fence to keep people off.

VI. SOURCES OF INFORMATION (Cite specific references, e.g., state files,  
sample analysis, reports)

site inspection 06/04/84

EPA FORM 2070-13(7-81)

EPA

POTENTIAL HAZARDOUS WASTE SITE  
SITE INSPECTION REPORT  
PART 5 - WATER, DEMOGRAPHIC, AND ENVIRONMENTAL DATA

I. IDENTIFICATION  
01 STATE 02 SITE NO.

## II. DRINKING WATER SUPPLY

01 TYPE OF DRINKING SUPPLY  
(Check as applicable)

02 STATUS

03 DISTANCE TO SITE

	SURFACE	WELL	ENDANGERED	AFFECTED	MONITORED	A.	B.
COMMUNITY	A.	B. X	A.	B.	C.	3 (mi)	
NON-COMMUNITY	C.	D.	D.	E.	F.		(mi)

## III. GROUNDWATER

01 GROUNDWATER USE IN VICINITY (Check one)

A. ONLY SOURCE FOR DRINKING

C. COMMERCIAL, INDUSTRIAL, IRRIGATION

D. NOT USED, UNUSEABLE

X B. DRINKING

(Other sources available)

COMMERCIAL, INDUSTRIAL, IRRIGATION

(No other water sources available)

02 POPULATION SERVED BY GROUNDWATER 10,000

03 DISTANCE TO NEAREST DRINKING WATER WELL (mi)

04 DEPTH TO GROUNDWATER  
0 - 10 (ft)05 DIRECTION OF GROUNDWATER FLOW  
WNW06 DEPTH TO AQUIFER OF CONCERN  
10 \* (ft)07 POTENTIAL YIELD OF AQUIFER  
270 ft<sup>3</sup>/d/1t (gpd)08 SOLE SOURCE AQUIFER  
X YES NO

09 DESCRIPTION OF WELLS (Including useage, depth, and location relative to population and buildings) There are 3 monitoring wells directly below the tailings dam.

\*According to Baker (1970), the Woodside is fractured in the Park City area. Consequently, hydraulic connection between the Woodside fr and the alluvium is assumed.

10 RECHARGE AREA

X YES COMMENTS minor recharge in  
NO unconsolidated Valley fill

11 DISCHARGE AREA

YES COMMENTS  
NO

## IV. SURFACE WATER

01 SURFACE WATER USE (Check one)

A. RESERVOIR, RECREATION  
DRINKING WATER SOURCEX B. IRRIGATION, ECONOMICALLY  
IMPORTANT RESOURCESC. COMMERCIAL, INDUSTRIAL  
D. NOT CURRENTLY USED

02 AFFECTED/POTENTIALLY AFFECTED BODIES OF WATER

NAME:	AFFECTED	DISTANCE TO SITE
Silver Creek		1,000 ft (mi)
		(mi)
		(mi)

EPA

## POTENTIAL HAZARDOUS WASTE SITE

## SITE INSPECTION REPORT

## PART 5 - WATER, DEMOGRAPHIC, AND ENVIRONMENTAL DATA

## I. IDENTIFICATION

01 STATE 02 SITE NO.

## V. DEMOGRAPHIC AND PROPERTY INFORMATION

## 01 TOTAL POPULATION WITHIN

ONE (1) MI. OF SITE

TWO (2) MI. OF SITE

THREE (3) MI. OF SITE

A. \_\_\_\_\_  
No. of personsB. \_\_\_\_\_  
No. of personsC. \_\_\_\_\_  
No. of persons

## 02 DISTANCE TO NEAREST POPULATION

(mi)

## 03 NUMBER OF BUILDINGS WITHIN TWO (2) MILES OF SITE

## 04 DISTANCE TO NEAREST OFF-SITE BUILDING

(mi)

05 POPULATION WITHIN VICINITY OF SITE (Provide narrative description of nature of population within vicinity of site; e.g., rural, village densely populated urban area) Population near site is rural farming area. Park City (population 710,000 in the winter) is approx. 3 miles to the west.

## VI. ENVIRONMENTAL INFORMATION

## 01 PERMEABILITY OF UNSATURATED ZONE (Check one)

A.  $10^{-6}$  -  $10^{-8}$  cm/secB.  $10^{-4}$  -  $10^{-6}$  cm/secC.  $10^{-4}$  -  $10^{-3}$  cm/secX D. GREATER THAN  $10^{-3}$  cm/sec

## 02 PERMEABILITY OF BEDROCK (Check one)

A. IMPERMEABLE

B. RELATIVELY IMPERMEABLE

X C. RELATIVELY PERMEABLE

(Less than  $10^{-6}$  cm/sec)( $10^{-4}$  -  $10^{-6}$  cm/sec)( $10^{-2}$  -  $10^{-4}$  cm/sec)D. VERY PERMEABLE (Greater than  $10^{-2}$  cm/sec)

## 03 DEPTH TO BEDROCK

100 (ft)

## 04 DEPTH OF CONTAMINATED SOIL ZONE

unknown (ft)

## 05 SOIL pH

## 06 NET PRECIPITATION

-12 (in)

## 07 ONE YEAR 24 HOUR RAINFALL

1 - 1.4 (in)

## 08 SLOPE

SITE SLOPE

1 - 3 %

DIRECTION OF SITE SLOPE

northwest

TERRAIN AVERAGE SLOPE

1 - 5 %

## 09 FLOOD POTENTIAL

SITE IS IN 5 YEAR FLOODPLAIN

## 10 SITE IS ON BARRIER ISLAND, COASTAL HIGH

HAZARD AREA, RIVERINE FLOODWAY

## 11 DISTANCE TO WETLANDS (5 acre minimum)

ESTUARINE

OTHER

## 12 DISTANCE TO CRITICAL HABITAT (of endangered

species) (mi)

A. (mi)

B. (mi)

ENDANGERED SPECIES:

## 13 LAND USE IN VICINITY

DISTANCE TO:

COMMERCIAL/INDUSTRIAL

A. 2 (mi)

RESIDENTIAL AREAS: NATIONAL/STATE PARKS,

FORESTS, OR WILDLIFE RESERVES

B. 2 (mi)

AGRICULTURAL LANDS

PRIME AG LAND

AG LAND

C. 1000 ft(mi) D. (mi)

## 14 DESCRIPTION OF SITE IN RELATION TO SURROUNDING TOPOGRAPHY

Richardson flat is a small valley approximately 2 miles west of Park City. Most of Richardson Flat lies in Silver Creek flood plain.

## VII. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

EPA

POTENTIAL HAZARDOUS WASTE SITE  
SITE INSPECTION REPORT  
PART 6 - SAMPLE AND FIELD INFORMATION

I. IDENTIFICATION  
01 STATE 02 SITE NO.

## II. SAMPLES TAKEN

SAMPLE TYPE	01 NUMBER OF SAMPLES TAKEN	02 SAMPLES SENT TO	03 ESTIMATED DATE RESULTS AVAILABLE
GROUNDWATER	3	Ut State Dept. of Health Lab	8/84
SURFACE WATER	4	Ut State Dept. of Health Lab	8/84
WASTE	2	Ut State Dept. of Health Lab	10/84
AIR			
RUNOFF			
SPILL			
SOIL	2	Ut State Dept. of Health Lab	10/84
VEGETATION			
OTHER			

## III. FIELD MEASUREMENTS TAKEN

01 TYPE 02 COMMENTS  
None

## IV. PHOTOGRAPHS AND MAPS

01 TYPE X GROUND AERIAL 02 IN CUSTODY OF Bureau of Solid and Hazardous Waste  
(Name of organization or individual)

03 MAPS 04 LOCATION OF MAPS

X YES Utah Dept. of Oil, Gas & Mining  
NO

## V. OTHER FIELD DATA COLLECTED (Provide narrative description)

None

VI. SOURCES OF INFORMATION (Cite specific references, e.g., state files,  
sample analysis, reports)

Lab analyses

EPA FORM 2070-13(7-81)

EPA

POTENTIAL HAZARDOUS WASTE SITE  
SITE INSPECTION REPORT  
PART 7 - OWNER INFORMATIONI. IDENTIFICATION  
01 STATE 02 SITE NO.

II. CURRENT OWNER(S)				PARENT COMPANY (If applicable)			
01 NAME	02 D+B NUMBER	08 NAME	02 D+B NUMBER				
United Park City Mines							
03 STREET ADDRESS (P.O. Box, RFD#, etc.)	04 SIC CODE	10 STREET ADDRESS (P.O. Box, RFD#, etc.)	11 SIC CODE				
309 Kearns Bldg							
05 CITY	06 STATE	07 ZIP CODE	12 CITY	13 STATE	14 ZIP CODE		
Salt Lake City Utah 84101							
01 NAME	02 D+B NUMBER	08 NAME	02 D+B NUMBER				
03 STREET ADDRESS (P.O. Box, RFD#, etc.)	04 SIC CODE	10 STREET ADDRESS (P.O. Box, RFD#, etc.)	11 SIC CODE				
05 CITY	06 STATE	07 ZIP CODE	12 CITY	13 STATE	14 ZIP CODE		
01 NAME	02 D+B NUMBER	08 NAME	02 D+B NUMBER				
03 STREET ADDRESS (P.O. Box, RFD#, etc.)	04 SIC CODE	10 STREET ADDRESS (P.O. Box, RFD#, etc.)	11 SIC CODE				
05 CITY	06 STATE	07 ZIP CODE	12 CITY	13 STATE	14 ZIP CODE		
01 NAME	02 D+B NUMBER	08 NAME	02 D+B NUMBER				
03 STREET ADDRESS (P.O. Box, RFD#, etc.)	04 SIC CODE	10 STREET ADDRESS (P.O. Box, RFD#, etc.)	11 SIC CODE				
05 CITY	06 STATE	07 ZIP CODE	12 CITY	13 STATE	14 ZIP CODE		
III. PREVIOUS OWNER(S)				IV. REALTY OWNER(S)			
(List most recent first)				(If applicable, list most recent first)			
01 NAME	02 D+B NUMBER	01 NAME	02 D+B NUMBER				
03 STREET ADDRESS (P.O. Box, RFD#, etc.)	04 SIC CODE	03 STREET ADDRESS (P.O. Box, RFD#, etc.)	04 SIC CODE				
05 CITY	06 STATE	07 ZIP CODE	05 CITY	06 STATE	07 ZIP CODE		
01 NAME	02 D+B NUMBER	01 NAME	02 D+B NUMBER				
03 STREET ADDRESS (P.O. Box, RFD#, etc.)	04 SIC CODE	03 STREET ADDRESS (P.O. Box, RFD#, etc.)	04 SIC CODE				
05 CITY	06 STATE	07 ZIP CODE	05 CITY	06 STATE	07 ZIP CODE		
V. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)							

EPA

POTENTIAL HAZARDOUS WASTE SITE  
SITE INSPECTION REPORT  
PART 8 - OPERATOR INFORMATIONI. IDENTIFICATION  
01 STATE 02 SITE NO.

II. CURRENT OPERATOR OPERATOR'S PARENT COMPANY  
(Provide if different from owner) (If applicable)

01 NAME	02 D+B NUMBER	10 NAME	11 D+B NUMBER		
Rav Wortley*					
03 STREET ADDRESS (P.O. Box, RFD#, etc.)	04 SIC CODE	12 STREET ADDRESS (P.O. Box, RFD#, etc.)	13 SIC CODE		
unknown					
05 CITY	06 STATE	07 ZIP CODE	14 CITY	15 STATE	16 ZIP CODE
08 YEARS OF OPERATION 09 NAME OF OWNER					

III. PREVIOUS OPERATOR(S) (List most recent first; provide only if different from owner) PREVIOUS OPERATOR'S PARENT COMPANIES (If applicable)

01 NAME	02 D+B NUMBER	10 NAME	11 D+B NUMBER		
Noranda Mining Co.					
03 STREET ADDRESS (P.O. Box, RFD#, etc.)	04 SIC CODE	12 STREET ADDRESS (P.O. Box, RFD#, etc.)	13 SIC CODE		
unknown					
05 CITY	06 STATE	07 ZIP CODE	14 CITY	15 STATE	16 ZIP CODE
08 YEARS OF OPERATION 09 NAME OF OWNER DURING THIS PERIOD					

01 NAME	02 D+B NUMBER	10 NAME	11 D+B NUMBER		
03 STREET ADDRESS (P.O. Box, RFD#, etc.)	04 SIC CODE	12 STREET ADDRESS (P.O. Box, RFD#, etc.)	13 SIC CODE		
05 CITY	06 STATE	07 ZIP CODE	14 CITY	15 STATE	16 ZIP CODE
08 YEARS OF OPERATION 09 NAME OF OWNER DURING THIS PERIOD					

IV. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis reports)

\*Mr. Wortley leases part of the tailings for use as roadbase and fill for sewer lines.

EPA

POTENTIAL HAZARDOUS WASTE SITE  
SITE INSPECTION REPORT  
PART 9 - GENERATOR/TRANSPORTER INFORMATIONI. IDENTIFICATION  
01 STATE 02 SITE NO.

## II. ON-SITE GENERATOR

01 NAME 02 D+B NUMBER

03 STREET ADDRESS (P.O. Box, RFD#, etc.) 04 SIC CODE

05 CITY 06 STATE 07 ZIP CODE

## III. OFF-SITE GENERATOR(S)

01 NAME 02 D+B NUMBER 10 NAME 11 D+B NUMBER

03 STREET ADDRESS (P.O. Box, RFD#, etc.) 04 SIC CODE 12 STREET ADDRESS (P.O. Box, RFD#, etc.) 13 SIC CODE

05 CITY 06 STATE 07 ZIP CODE 14 CITY 15 STATE 16 ZIP CODE

01 NAME 02 D+B NUMBER 01 NAME 02 D+B NUMBER

03 STREET ADDRESS (P.O. Box, RFD#, etc.) 04 SIC CODE 03 STREET ADDRESS (P.O. Box, RFD#, etc.) 04 SIC CODE

05 CITY 06 STATE 07 ZIP CODE 05 CITY 06 STATE 07 ZIP CODE

## IV. TRANSPORTER(S)

01 NAME 02 D+B NUMBER 01 NAME 02 D+B NUMBER

03 STREET ADDRESS (P.O. Box, RFD#, etc.) 04 SIC CODE 03 STREET ADDRESS (P.O. Box, RFD#, etc.) 04 SIC CODE

05 CITY 06 STATE 07 ZIP CODE 05 CITY 06 STATE 07 ZIP CODE

01 NAME 02 D+B NUMBER 01 NAME 02 D+B NUMBER

03 STREET ADDRESS (P.O. Box, RFD#, etc.) 04 SIC CODE 03 STREET ADDRESS (P.O. Box, RFD#, etc.) 04 SIC CODE

05 CITY 06 STATE 07 ZIP CODE 05 CITY 06 STATE 07 ZIP CODE

V. SOURCES OF INFORMATION (Cite specific references, e.g., state files,  
sample analysis, reports)

EPA FORM 2070-13(7-81)

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POTENTIAL HAZARDOUS WASTE SITE  
SITE INSPECTION REPORT  
PART 10 - GENERATOR/TRANSPORTER INFORMATION

I. IDENTIFICATION  
01 STATE 02 SITE NO.

II. PAST RESPONSE ACTIVITIES

01 A. WATER SUPPLY CLOSED  
04 DESCRIPTION

02 DATE \_\_\_\_\_ 03 AGENCY \_\_\_\_\_

01 B. TEMPORARY WATER SUPPLY PROVIDED  
04 DESCRIPTION

02 DATE \_\_\_\_\_ 03 AGENCY \_\_\_\_\_

01 C. PERMANENT WATER SUPPLY PROVIDED  
04 DESCRIPTION

02 DATE \_\_\_\_\_ 03 AGENCY \_\_\_\_\_

01 D. SPILLED MATERIAL REMOVED  
04 DESCRIPTION

02 DATE \_\_\_\_\_ 03 AGENCY \_\_\_\_\_

01 E. CONTAMINATED SOIL REMOVED  
04 DESCRIPTION

02 DATE \_\_\_\_\_ 03 AGENCY \_\_\_\_\_

01 F. WASTE REPACKAGED  
04 DESCRIPTION

02 DATE \_\_\_\_\_ 03 AGENCY \_\_\_\_\_

01 G. WASTE DISPOSED ELSEWHERE  
04 DESCRIPTION

02 DATE \_\_\_\_\_ 03 AGENCY \_\_\_\_\_

01 H. ON SITE BURIAL  
04 DESCRIPTION

02 DATE \_\_\_\_\_ 03 AGENCY \_\_\_\_\_

01 I. IN SITU CHEMICAL TREATMENT  
04 DESCRIPTION

02 DATE \_\_\_\_\_ 03 AGENCY \_\_\_\_\_

01 J. IN SITU BIOLOGICAL TREATMENT  
04 DESCRIPTION

02 DATE \_\_\_\_\_ 03 AGENCY \_\_\_\_\_

01 K. IN SITU PHYSICAL TREATMENT  
04 DESCRIPTION

02 DATE \_\_\_\_\_ 03 AGENCY \_\_\_\_\_

01 L. ENCAPSULATION  
04 DESCRIPTION

02 DATE \_\_\_\_\_ 03 AGENCY \_\_\_\_\_

01 M. EMERGENCY WASTE TREATMENT  
04 DESCRIPTION

02 DATE \_\_\_\_\_ 03 AGENCY \_\_\_\_\_



EPA

POTENTIAL HAZARDOUS WASTE SITE  
SITE INSPECTION REPORT  
PART 10 - PAST RESPONSE ACTIVITIES

I. IDENTIFICATION  
01 STATE 02 SITE NO.

II. PAST RESPONSE ACTIVITIES (Continued)

01 N. CUTOFF WALLS 02 DATE \_\_\_\_\_ 03 AGENCY \_\_\_\_\_  
04 DESCRIPTION

01 O. EMERGENCY DIKING/SURFACE WATER DIVERSION 02 DATE \_\_\_\_\_ 03 AGENCY \_\_\_\_\_  
04 DESCRIPTION

01 P. CUTOFF TRENCHES/SUMP 02 DATE \_\_\_\_\_ 03 AGENCY \_\_\_\_\_  
04 DESCRIPTION

01 Q. SUBSURFACE CUTOFF WALL 02 DATE \_\_\_\_\_ 03 AGENCY \_\_\_\_\_  
04 DESCRIPTION

01 R. BARRIER WALLS CONSTRUCTED 02 DATE \_\_\_\_\_ 03 AGENCY \_\_\_\_\_  
04 DESCRIPTION

01 S. CAPPING/COVERING 02 DATE \_\_\_\_\_ 03 AGENCY \_\_\_\_\_  
04 DESCRIPTION

01 T. BULK TANKAGE REPAIRED 02 DATE \_\_\_\_\_ 03 AGENCY \_\_\_\_\_  
04 DESCRIPTION

01 U. GROUT CURTAIN CONSTRUCTED 02 DATE \_\_\_\_\_ 03 AGENCY \_\_\_\_\_  
04 DESCRIPTION

01 V. BOTTOM SEALED 02 DATE \_\_\_\_\_ 03 AGENCY \_\_\_\_\_  
04 DESCRIPTION

01 W. GAS CONTROL 02 DATE \_\_\_\_\_ 03 AGENCY \_\_\_\_\_  
04 DESCRIPTION

01 X. FIRE CONTROL 02 DATE \_\_\_\_\_ 03 AGENCY \_\_\_\_\_  
04 DESCRIPTION

01 Y. LEACHATE TREATMENT 02 DATE \_\_\_\_\_ 03 AGENCY \_\_\_\_\_  
04 DESCRIPTION

01 Z. AREA EVACUATED 02 DATE \_\_\_\_\_ 03 AGENCY \_\_\_\_\_  
04 DESCRIPTION

EPA

POTENTIAL HAZARDOUS WASTE SITE  
SITE INSPECTION REPORT  
PART 10 - PAST RESPONSE ACTIVITIES

I. IDENTIFICATION  
01 STATE 02 SITE NO.  
\_\_\_\_\_

II. PAST RESPONSE ACTIVITIES (Continued)

01 1. ACCESS TO SITE RESTRICTED 02 DATE \_\_\_\_\_ 03 AGENCY \_\_\_\_\_  
04 DESCRIPTION \_\_\_\_\_

01 2. POPULATION RELOCATED 02 DATE \_\_\_\_\_ 03 AGENCY \_\_\_\_\_  
04 DESCRIPTION \_\_\_\_\_

01 3. OTHER REMEDIAL ACTIVITIES 02 DATE \_\_\_\_\_ 03 AGENCY \_\_\_\_\_  
04 DESCRIPTION \_\_\_\_\_

III. SOURCES OF INFORMATION (Cite specific references, e.g., state files,  
sample analysis, reports)  
\_\_\_\_\_  
\_\_\_\_\_

EPA FORM 2070-13(7-81)

EPA

POTENTIAL HAZARDOUS WASTE SITE  
SITE INSPECTION REPORT  
PART 11 - ENFORCEMENT INFORMATION

I. IDENTIFICATION  
01 STATE 02 SITE NO.

II. ENFORCEMENT INFORMATION

01 PAST REGULATORY/ENFORCEMENT ACTION YES ☒ NO

02 DESCRIPTION OF FEDERAL, STATE, LOCAL REGULATORY/ENFORCEMENT ACTION

III. SOURCES OF INFORMATION (Cite specific references, e.g., state files,  
sample analysis, reports)

EPA FORM 2070-13(7-81)

APPENDIX 3  
SAMPLE ANALYSIS SHEETS

Rev. 3 E2  
Field No.

135

Pest.  
Rad.  
Bact.  
Spec.

Date Recd.:  
Received By:

UTAH STATE DEPARTMENT OF HEALTH  
ENVIRONMENTAL HEALTH  
WATER ANALYSES

43841927

Sample No.

Source No.	Water Syst. No.	Source No.	County	Current use
114	719	611	15 Blaine	108
Date Collected	Time Collected	Water Rights No.	16 Rich	Proposed use
7/10/84	07:30	707	17 Salt Lake	109
Exact Description of Sampling Point			18 San Juan	1. Culinary
110-111-112-113-114-115-116-117-118-119-120-121-122-123-124-125-126-127-128-129-130-131-132-133-134-135-136-137-138-139-140-141-142-143-144-145-146-147-148-149-150-151-152-153-154-155-156-157-158-159-160-161-162-163-164-165-166-167-168-169-170-171-172-173-174-175-176-177-178-179-180-181-182-183-184-185-186-187-188-189-190-191-192-193-194-195-196-197-198-199-200-201-202-203-204-205-206-207-208-209-210-211-212-213-214-215-216-217-218-219-220-221-222-223-224-225-226-227-228-229-230-231-232-233-234-235-236-237-238-239-240-241-242-243-244-245-246-247-248-249-250-251-252-253-254-255-256-257-258-259-260-261-262-263-264-265-266-267-268-269-270-271-272-273-274-275-276-277-278-279-280-281-282-283-284-285-286-287-288-289-290-291-292-293-294-295-296-297-298-299-300-301-302-303-304-305-306-307-308-309-310-311-312-313-314-315-316-317-318-319-320-321-322-323-324-325-326-327-328-329-330-331-332-333-334-335-336-337-338-339-340-341-342-343-344-345-346-347-348-349-350-351-352-353-354-355-356-357-358-359-360-361-362-363-364-365-366-367-368-369-370-371-372-373-374-375-376-377-378-379-380-381-382-383-384-385-386-387-388-389-390-391-392-393-394-395-396-397-398-399-400-401-402-403-404-405-406-407-408-409-410-411-412-413-414-415-416-417-418-419-420-421-422-423-424-425-426-427-428-429-430-431-432-433-434-435-436-437-438-439-440-441-442-443-444-445-446-447-448-449-450-451-452-453-454-455-456-457-458-459-460-461-462-463-464-465-466-467-468-469-470-471-472-473-474-475-476-477-478-479-480-481-482-483-484-485-486-487-488-489-490-491-492-493-494-495-496-497-498-499-500-501-502-503-504-505-506-507-508-509-510-511-512-513-514-515-516-517-518-519-520-521-522-523-524-525-526-527-528-529-530-531-532-533-534-535-536-537-538-539-540-541-542-543-544-545-546-547-548-549-550-551-552-553-554-555-556-557-558-559-560-561-562-563-564-565-566-567-568-569-570-571-572-573-574-575-576-577-578-579-580-581-582-583-584-585-586-587-588-589-590-591-592-593-594-595-596-597-598-599-600-601-602-603-604-605-606-607-608-609-610-611-612-613-614-615-616-617-618-619-620-621-622-623-624-625-626-627-628-629-630-631-632-633-634-635-636-637-638-639-640-641-642-643-644-645-646-647-648-649-650-651-652-653-654-655-656-657-658-659-660-661-662-663-664-665-666-667-668-669-670-671-672-673-674-675-676-677-678-679-680-681-682-683-684-685-686-687-688-689-690-691-692-693-694-695-696-697-698-699-700-701-702-703-704-705-706-707-708-709-710-711-712-713-714-715-716-717-718-719-720-721-722-723-724-725-726-727-728-729-730-731-732-733-734-735-736-737-738-739-740-741-742-743-744-745-746-747-748-749-750-751-752-753-754-755-756-757-758-759-760-761-762-763-764-765-766-767-768-769-770-771-772-773-774-775-776-777-778-779-780-781-782-783-784-785-786-787-788-789-790-791-792-793-794-795-796-797-798-799-800-801-802-803-804-805-806-807-808-809-810-811-812-813-814-815-816-817-818-819-820-821-822-823-824-825-826-827-828-829-830-831-832-833-834-835-836-837-838-839-840-841-842-843-844-845-846-847-848-849-850-851-852-853-854-855-856-857-858-859-860-861-862-863-864-865-866-867-868-869-870-871-872-873-874-875-876-877-878-879-880-881-882-883-884-885-886-887-888-889-890-891-892-893-894-895-896-897-898-899-900-901-902-903-904-905-906-907-908-909-910-911-912-913-914-915-916-917-918-919-920-921-922-923-924-925-926-927-928-929-930-931-932-933-934-935-936-937-938-939-940-941-942-943-944-945-946-947-948-949-950-951-952-953-954-955-956-957-958-959-960-961-962-963-964-965-966-967-968-969-970-971-972-973-974-975-976-977-978-979-980-981-982-983-984-985-986-987-988-989-990-991-992-993-994-995-996-997-998-999-1000-1001-1002-1003-1004-1005-1006-1007-1008-1009-1010-1011-1012-1013-1014-1015-1016-1017-1018-1019-1020-1021-1022-1023-1024-1025-1026-1027-1028-1029-1030-1031-1032-1033-1034-1035-1036-1037-1038-1039-1040-1041-1042-1043-1044-1045-1046-1047-1048-1049-1050-1051-1052-1053-1054-1055-1056-1057-1058-1059-1060-1061-1062-1063-1064-1065-1066-1067-1068-1069-1070-1071-1072-1073-1074-1075-1076-1077-1078-1079-1080-1081-1082-1083-1084-1085-1086-1087-1088-1089-1090-1091-1092-1093-1094-1095-1096-1097-1098-1099-1100-1101-1102-1103-1104-1105-1106-1107-1108-1109-1110-1111-1112-1113-1114-1115-1116-1117-1118-1119-1120-1121-1122-1123-1124-1125-1126-1127-1128-1129-1130-1131-1132-1133-1134-1135-1136-1137-1138-1139-1140-1141-1142-1143-1144-1145-1146-1147-1148-1149-1150-1151-1152-1153-1154-1155-1156-1157-1158-1159-1160-1161-1162-1163-1164-1165-1166-1167-1168-1169-1170-1171-1172-1173-1174-1175-1176-1177-1178-1179-1180-1181-1182-1183-1184-1185-1186-1187-1188-1189-1190-1191-1192-1193-1194-1195-1196-1197-1198-1199-1200-1201-1202-1203-1204-1205-1206-1207-1208-1209-1210-1211-1212-1213-1214-1215-1216-1217-1218-1219-1220-1221-1222-1223-1224-1225-1226-1227-1228-1229-1230-1231-1232-1233-1234-1235-1236-1237-1238-1239-1240-1241-1242-1243-1244-1245-1246-1247-1248-1249-1250-1251-1252-1253-1254-1255-1256-1257-1258-1259-1260-1261-1262-1263-1264-1265-1266-1267-1268-1269-1270-1271-1272-1273-1274-1275-1276-1277-1278-1279-1280-1281-1282-1283-1284-1285-1286-1287-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UTAH STATE DEPARTMENT OF HEALTH

ENVIRONMENTAL HEALTH  
WATER ANALYSES

184841028

Series No. 754

Rev. 3-52	File No.	Nut	EOD	Post. Rec. Ext. <input checked="" type="checkbox"/> Soc.	Date Recd.: _____ Received By: _____
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Stream No.						Water Syst. No. Source No.					
<div></div>						<div></div>					
Date Collected						Time Collected					
1970-10-15						09:41					
yr. mo. dy.						24-hour clock					
Exact Description of sampling Point											
N. 1st St. at 1st St.											
Water from fire hydrant											
for water quality test											
Supply Owned by						Sample Type					
<div></div>						<div></div>					
Sample Collected by											
J. M. Kinnon											
SEND REPORT TO:						Phone					
J.M. Kinnon						531-4115					
150 West North Ave.											
S.C.D.						CD# 184110					
						ZIP Code					

<u>114</u> Single Source		<u>111</u> County		Current use <u>108</u>
719		611		Proposed use <u>105</u>
01 Spring	14 Other	01 Barn	18 Pile	1. Culinary 2. Agriculture 3. Industrial 4. Other
02 Well	15 Tunnor	02 Box Elder	17 Rich	
03 Stream	18 Artesian	03 Cact	18 Salt Lake	
04 Lake	well	04 Cedar	19 San Juan	
06 Dist. syst.	19 Swimming	05 Digest	20 Sanpete	
07 Effluent	pool	06 Elm	21 Sevier	
08 Storm	sewer	07 Orange	22 Summit	
		08 Emery	23 Tooele	
		09 Cornland	24 Uintah	
		10 Grand	25 Wasatch	
		11 Iron	26 Westhogan	
		12 Juab	27 Washington	
		13 Kane	28 Wayne	
		14 Beaver	29 Weber	
		15 Morgan		

FIELD TESTS									
Date: JUL 25 1964									
Temperature	792	CO <sub>2</sub> , mg/l	572						
D.O., mg/l	793	Depth, m	609						
Sp. Cond., $\mu$ mhos	653	Cl Resid., mg/l	753						
PH	651	Flow, MGD	652						
Sp. Gravity	608	Flow, GPM	604						
Transparency, m	649	Flow, cfs	659						

2	Temperature(°C)		650	pH		782	<b>WASTEWATER ANALYSIS</b>				<b>BACT. LAB. No.</b>			
		mg/l					mg/l							
<input type="checkbox"/>	B.O.D. <sub>5</sub>	<input checked="" type="checkbox"/>	794	<input type="checkbox"/>	T.O.C.	<input checked="" type="checkbox"/>	671	<input type="checkbox"/>	M.P.N. Total Coliforms/100ml	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	658	
<input type="checkbox"/>	Tot. Sus. Solids	<input type="checkbox"/>	787	<input type="checkbox"/>	C.O.D.	<input checked="" type="checkbox"/>	777	<input type="checkbox"/>	M.P.N. Fecal Coliforms/100ml	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	657	
<input type="checkbox"/>	NO <sub>2</sub> +NO <sub>3</sub> .N	<input checked="" type="checkbox"/>	602	<input type="checkbox"/>	Cyanide	<input checked="" type="checkbox"/>	775	<input type="checkbox"/>	Fecal Strep C/100ml.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	656	
<input type="checkbox"/>	T.K.N.	<input type="checkbox"/>	778	<input type="checkbox"/>	Phenolics	<input checked="" type="checkbox"/>	783	<input type="checkbox"/>	M.F. Total Coliforms/100ml.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	654	
<input type="checkbox"/>	Oil & Grease	<input checked="" type="checkbox"/>	780	<input type="checkbox"/>	Sulfide	<input checked="" type="checkbox"/>	672	<input type="checkbox"/>	M.F. Fecal Coliforms/100ml.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	653	
									Plate Count-Org./ml.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	599	

3	Filtered	Unfiltered		4	CHEMICAL ANALYSIS	pH, units	7.4		
me/l	CATIONS	mg/l	ug/l (ppb)	me/l	ANIONS	mg/l	TOTAL METALS ANALYSIS		
	Arsenic as N		722		Bicarbonate	178	5 CATIONS mg/l ug/l (ppb)		
	Arsenic		723		Carbon Dioxide	11	Asuminum	0.2	800
	Barium		724		Carbonate	2	Arsenic	0.001	660
	Boron		725	.20	Chloride	7	Barium	1.4	661
	Cadmium		727	2.92	CO <sub>3</sub> Solids	95	Beryllium	<	801
1.58	Calcium	38	728		Fluoride	2.14	Cadmium	<	662
	Chromium		729		Hydroxide	0.026	Chromium	<	663
	Chromium, Hex. as Cr		730		Nitrate as N	0.14	Cobalt	<	804
	Copper		732		Nitrite as N	0.01	Copper	<	664
	Iron, dissolved		733		Phosphorus, Ortho as P	1.2	Gold		700
	Lead		734		Silica, dissolved as SiO <sub>2</sub>	2.9	Iron	20	755
1.60	Magnesium	7	737	0.17	Sulfate	8	Lead	<	665
	Manganese		738				Manganese	<	666
	Nickel		740				Mercury	< 0.002	739
0.05	Potassium	2	742	3.27	TOTAL ANIONS		Molybdenum	<	802
	Selenium		743		GRAND TOTAL		Nickel		667
	Silver		744				Selenium	< 0.005	668
1.69	Sodium	11	745		Tot. Phosphorus		Silver	<	669
	Zinc		749		Total Alk. as CaCO <sub>3</sub>	14.2	Uranium		601
3.22	TOTAL CATIONS				T. Hdns. as CaCO <sub>3</sub>	15.4	Vanadium	<	803
					Surfactant as MBAS		Zinc	1.01	670
					Turbidity, as NTU	5.3			
					Sp. Gravity				
	Sp. Cond. umhos/cm.	245	762						
	TDS @ 180°C	262	786						

RADIOLOGICS				INTERPRETATION OF ANALYSES:			
Alpha, gross		621	<sup>89</sup> Sr		633	Based on State Standards, this sample was:  B.O.D. <sub>5</sub> Tot. Sus. Solids  M.P.N. Total Coliform. M.P.N. Fecal Coliform.	
Beta, gross		623	131 <sub>I</sub>		635		
Tritium, 3H		625	134 <sub>Cs</sub>		637		
226 Radium		627	137 <sub>Cs</sub>		639		
228 Radium		629					
90Sr		631					
Analyses Approved By: <u>RSJ</u> Date: <u>8/4/62</u> By: <u>ENVIRONMENTAL HEALTH</u>							

**Analyses Approved By:**

Date: 840629

By \_\_\_\_\_ ENVIRONMENTAL HEALTH

S. Oman 17-July-84







— A — 10

Rev. 3/82 **484140**

Field No.

☒ TC ☒ IM ☐ Nut ☐ PC ☐ PM ☐ BOD

☐ Pest.  
☐ Rad.  
☐ Bact.  
☒ Spec.

Date Recd.: \_\_\_\_\_

Received By: \_\_\_\_\_

UTAH STATE DEPARTMENT OF HEALTH

ENVIRONMENTAL HEALTH  
WATER ANALYSES

**484841932**

Sample No. 701

Storet No. \_\_\_\_\_ Water Syst. No. Source No. \_\_\_\_\_  
Date Collected **702** Time Collected **1040** Water Rights No. **707**  
Yr. Mo. Dy. 24-hour Clock  
Exact Description of Sampling Point  
**North of R.R. 646**  
Supply Owned by \_\_\_\_\_ Sample Type **712** **710**  
Sample Collected by **HELDON** **713**  
SEND REPORT TO: Phone **6334145**  
**UTAH STATE DEPT. OF HEALTH**  
**SALT LAKE CITY**  
Zip code **84112**

Sample Source **114**  
**714**  
01 Spring 14 Other  
02 Well 15 Tunnel  
03 Stream 18 Artesian  
04 Lake well  
06 Dist. syst. 19 Swimming  
07 Effluent pool  
08 Storm sewer  
Current use **708**  
Proposed use **709**  
1. Culinary  
2. Agriculture  
3. Industrial  
4. Other  
Cost Code **365** **770**

2 Temperature (°C) **650** pH **782** WASTEWATER ANALYSIS BACT. LAB. No. \_\_\_\_\_  
mg/l T.O.C. mg/l  
B.O.D.<sub>5</sub> **794** C.O.D. **671**  
Tot. Sus. Solids **787** Cyanide **777**  
NO<sub>2</sub>+NO<sub>3</sub>-N **602** Phenolics **775**  
T.K.N. **778** Sulfide **783**  
Oil & Grease **780** M.P.N. Total Coliforms/100ml **658**  
M.P.N. Fecal Coliforms/100ml **657**  
Fecal Strep C/100ml **656**  
M.F. Total Coliforms/100ml **654**  
M.F. Fecal Coliforms/100ml **655**  
Plate Count-Orig./ml **599**

3 Filtered Unfiltered 4 CHEMICAL ANALYSIS pH, units **717**  
me/l CATIONS mg/l ug/l (ppb) me/l ANIONS mg/l  
Ammonia as N **722** Bicarbonate **286** **788**  
Arsenic **723** Carbon Dioxide **729**  
Barium **724** Carbonate **760**  
Boron **725** Chloride **32** **763**  
Cadmium **727** CO<sub>2</sub> Solids **141**  
Calcium **2218** **728** Fluoride **34** **765**  
Chromium **729** Hydrosulfide **767**  
Chromium, Hex. as Cr **730** Nitrate as N **605**  
Copper **732** Nitrite as N **606**  
Iron, dissolved **733** Phosphorus, Ortho as P **607**  
Lead **734** Silica, dissolved as SiO<sub>2</sub> **33** **750**  
Magnesium **56** **737** Sulfate **584** **772**  
Manganese **738**  
Nickel **740**  
Potassium **742**  
Selenium **743**  
Silver **744**  
Sodium **36** **745**  
Zinc **749**  
TOTAL CATIONS **17.6**  
Sp. Cond.  $\mu$ mhos/cm. **1400** **782**  
TDS @ 180°C **1246** **786**  
5 CATIONS mg/l ug/l (ppb)  
Aluminum **800**  
Arsenic **860**  
Barium **661**  
Beryllium **801**  
Cadmium **662**  
Chromium **663**  
Cobalt **804**  
Copper **664**  
Gold **700**  
Iron **765**  
Lead **665**  
Manganese **666**  
Mercury **739**  
Molybdenum **802**  
Nickel **667**  
Selenium **668**  
Silver **669**  
Uranium **601**  
Vanadium **803**  
Zinc **670**  
TOTAL ANIONS **17.7**  
GRAND TOTAL  
Tot. Phosphorus **785**  
Total Alk. as CaCO<sub>3</sub> **235** **752**  
T. Hons. as CaCO<sub>3</sub> **460** **754**  
Surfactant as MBAS **773**  
Turbidity, as NTU **2.5** **757**  
Sp. Gravity **608**

6 RADIOLOGICS INTERPRETATION OF ANALYSES:  
Alpha, gross **621** **89Sr** **633**  
Beta, gross **623** **131I** **635**  
Tritium, <sup>3</sup>H **625** **134Cs** **637**  
226 Radium **627** **137Cs** **639**  
228 Radium **629**  
90Sr **631**  
Remarks: \_\_\_\_\_  
Based on State Standards, this sample was:  
B.O.D.<sub>5</sub> \_\_\_\_\_  
Tot. Sus. Solids \_\_\_\_\_  
M.P.N. Total Coliform \_\_\_\_\_  
M.P.N. Fecal Coliform \_\_\_\_\_  
Analyses Approved By: **RED** Date: **840629** By: \_\_\_\_\_ ENVIRONMENTAL HEALTH

of Soil Ph

File No.

File No.

\_\_\_\_\_

1



三

**Num**

II

Plant	Part	Pest.
1. <i>Abies balsamea</i>	Needles	1. <i>Abies balsamea</i>
2. <i>Pinus strobus</i>	Needles	2. <i>Pinus strobus</i>
3. <i>Pinus resinosa</i>	Needles	3. <i>Pinus resinosa</i>
4. <i>Pinus taeda</i>	Needles	4. <i>Pinus taeda</i>
5. <i>Pinus strobus</i>	Needles	5. <i>Pinus strobus</i>
6. <i>Pinus strobus</i>	Needles	6. <i>Pinus strobus</i>
7. <i>Pinus strobus</i>	Needles	7. <i>Pinus strobus</i>
8. <i>Pinus strobus</i>	Needles	8. <i>Pinus strobus</i>
9. <i>Pinus strobus</i>	Needles	9. <i>Pinus strobus</i>
10. <i>Pinus strobus</i>	Needles	10. <i>Pinus strobus</i>
11. <i>Pinus strobus</i>	Needles	11. <i>Pinus strobus</i>
12. <i>Pinus strobus</i>	Needles	12. <i>Pinus strobus</i>
13. <i>Pinus strobus</i>	Needles	13. <i>Pinus strobus</i>
14. <i>Pinus strobus</i>	Needles	14. <i>Pinus strobus</i>
15. <i>Pinus strobus</i>	Needles	15. <i>Pinus strobus</i>
16. <i>Pinus strobus</i>	Needles	16. <i>Pinus strobus</i>
17. <i>Pinus strobus</i>	Needles	17. <i>Pinus strobus</i>
18. <i>Pinus strobus</i>	Needles	18. <i>Pinus strobus</i>
19. <i>Pinus strobus</i>	Needles	19. <i>Pinus strobus</i>
20. <i>Pinus strobus</i>	Needles	20. <i>Pinus strobus</i>
21. <i>Pinus strobus</i>	Needles	21. <i>Pinus strobus</i>
22. <i>Pinus strobus</i>	Needles	22. <i>Pinus strobus</i>
23. <i>Pinus strobus</i>	Needles	23. <i>Pinus strobus</i>
24. <i>Pinus strobus</i>	Needles	24. <i>Pinus strobus</i>
25. <i>Pinus strobus</i>	Needles	25. <i>Pinus strobus</i>
26. <i>Pinus strobus</i>	Needles	26. <i>Pinus strobus</i>
27. <i>Pinus strobus</i>	Needles	27. <i>Pinus strobus</i>
28. <i>Pinus strobus</i>	Needles	28. <i>Pinus strobus</i>
29. <i>Pinus strobus</i>	Needles	29. <i>Pinus strobus</i>
30. <i>Pinus strobus</i>	Needles	30. <i>Pinus strobus</i>
31. <i>Pinus strobus</i>	Needles	31. <i>Pinus strobus</i>
32. <i>Pinus strobus</i>	Needles	32. <i>Pinus strobus</i>
33. <i>Pinus strobus</i>	Needles	33. <i>Pinus strobus</i>
34. <i>Pinus strobus</i>	Needles	34. <i>Pinus strobus</i>
35. <i>Pinus strobus</i>	Needles	35. <i>Pinus strobus</i>
36. <i>Pinus strobus</i>	Needles	36. <i>Pinus strobus</i>
37. <i>Pinus strobus</i>	Needles	37. <i>Pinus strobus</i>
38. <i>Pinus strobus</i>	Needles	38. <i>Pinus strobus</i>
39. <i>Pinus strobus</i>	Needles	39. <i>Pinus strobus</i>
40. <i>Pinus strobus</i>	Needles	40. <i>Pinus strobus</i>
41. <i>Pinus strobus</i>	Needles	41. <i>Pinus strobus</i>
42. <i>Pinus strobus</i>	Needles	42. <i>Pinus strobus</i>
43. <i>Pinus strobus</i>	Needles	43. <i>Pinus strobus</i>
44. <i>Pinus strobus</i>	Needles	44. <i>Pinus strobus</i>
45. <i>Pinus strobus</i>	Needles	45. <i>Pinus strobus</i>
46. <i>Pinus strobus</i>	Needles	46. <i>Pinus strobus</i>
47. <i>Pinus strobus</i>	Needles	47. <i>Pinus strobus</i>
48. <i>Pinus strobus</i>	Needles	48. <i>Pinus strobus</i>
49. <i>Pinus strobus</i>	Needles	49. <i>Pinus strobus</i>
50. <i>Pinus strobus</i>	Needles	50. <i>Pinus strobus</i>
51. <i>Pinus strobus</i>	Needles	51. <i>Pinus strobus</i>
52. <i>Pinus strobus</i>	Needles	52. <i>Pinus strobus</i>
53. <i>Pinus strobus</i>	Needles	53. <i>Pinus strobus</i>
54. <i>Pinus strobus</i>	Needles	54. <i>Pinus strobus</i>
55. <i>Pinus strobus</i>	Needles	55. <i>Pinus strobus</i>
56. <i>Pinus strobus</i>	Needles	56. <i>Pinus strobus</i>
57. <i>Pinus strobus</i>	Needles	57. <i>Pinus strobus</i>
58. <i>Pinus strobus</i>	Needles	58. <i>Pinus strobus</i>
59. <i>Pinus strobus</i>	Needles	59. <i>Pinus strobus</i>
60. <i>Pinus strobus</i>	Needles	60. <i>Pinus strobus</i>
61. <i>Pinus strobus</i>	Needles	61. <i>Pinus strobus</i>
62. <i>Pinus strobus</i>	Needles	62. <i>Pinus strobus</i>
63. <i>Pinus strobus</i>	Needles	63. <i>Pinus strobus</i>
64. <i>Pinus strobus</i>	Needles	64. <i>Pinus strobus</i>
65. <i>Pinus strobus</i>	Needles	65. <i>Pinus strobus</i>
66. <i>Pinus strobus</i>	Needles	66. <i>Pinus strobus</i>
67. <i>Pinus strobus</i>	Needles	67. <i>Pinus strobus</i>
68. <i>Pinus strobus</i>	Needles	68. <i>Pinus strobus</i>
69. <i>Pinus strobus</i>	Needles	69. <i>Pinus strobus</i>
70. <i>Pinus strobus</i>	Needles	70. <i>Pinus strobus</i>
71. <i>Pinus strobus</i>	Needles	71. <i>Pinus strobus</i>
72. <i>Pinus strobus</i>	Needles	72. <i>Pinus strobus</i>
73. <i>Pinus strobus</i>	Needles	73. <i>Pinus strobus</i>
74. <i>Pinus strobus</i>	Needles	74. <i>Pinus strobus</i>
75. <i>Pinus strobus</i>	Needles	75. <i>Pinus strobus</i>
76. <i>Pinus strobus</i>	Needles	76. <i>Pinus strobus</i>
77. <i>Pinus strobus</i>	Needles	77. <i>Pinus strobus</i>
78. <i>Pinus strobus</i>	Needles	78. <i>Pinus strobus</i>
79. <i>Pinus strobus</i>	Needles	79. <i>Pinus strobus</i>
80. <i>Pinus strobus</i>	Needles	80. <i>Pinus</i>

☐ Bag.

**Rect**

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175	176	177	178	179	180	181	182	183	184	185	186	187	188	189	190	191	192	193	194	195	196	197	198	199	200	201	202	203	204	205	206	207	208	209	210	211	212	213	214	215	216	217	218	219	220	221	222	223	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239	240	241	242	243	244	245	246	247	248	249	250	251	252	253	254	255	256	257	258	259	260	261	262	263	264	265	266	267	268	269	270	271	272	273	274	275	276	277	278	279	280	281	282	283	284	285	286	287	288	289	290	291	292	293	294	295	296	297	298	299	300	301	302	303	304	305	306	307	308	309	310	311	312	313	314	315	316	317	318	319	320	321	322	323	324	325	326	327	328	329	330	331	332	333	334	335	336	337	338	339	340	341	342	343	344	345	346	347	348	349	350	351	352	353	354	355	356	357	358	359	360	361	362	363	364	365	366	367	368	369	370	371	372	373	374	375	376	377	378	379	380	381	382	383	384	385	386	387	388	389	390	391	392	393	394	395	396	397	398	399	400	401	402	403	404	405	406	407	408	409	410	411	412	413	414	415	416	417	418	419	420	421	422	423	424	425	426	427	428	429	430	431	432	433	434	435	436	437	438	439	440	441	442	443	444	445	446	447	448	449	450	451	452	453	454	455	456	457	458	459	460	461	462	463	464	465	466
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Date Recd. \_\_\_\_\_

Received By:

UTAH STATE DEPARTMENT OF HEALTH

ENVIRONMENTAL HEALTH

## WATER ANALYSES

484841003

Sample No.

151

[illegible]

44-3841934

[illegible]

2	Temperature (°C)	650	pH	7.82	WASTEWATER ANALYSIS				BACT. LAB. No.			
	mg/l			mg/l								
<input type="checkbox"/>	B.O.D. <sub>5</sub>	794	<input type="checkbox"/>	T.O.C.	671	<input type="checkbox"/>	M.P.N. Total Coliforms/100ml					658
<input type="checkbox"/>	Tot. Sol. Solids	787	<input type="checkbox"/>	C.O.D.	777	<input type="checkbox"/>	M.P.N. Fecal Coliforms/100ml					657
<input type="checkbox"/>	NO <sub>2</sub> -NO <sub>3</sub> -N	602	<input type="checkbox"/>	Cyanide	775	<input type="checkbox"/>	Fecal Strep C/100ml.					656
<input type="checkbox"/>	T.K.N.-	778	<input type="checkbox"/>	Phenolics	783	<input type="checkbox"/>	M.F. Total Coliforms/100ml.					654
<input type="checkbox"/>	Oil & Grease	780	<input type="checkbox"/>	Sulfide	672	<input type="checkbox"/>	M.F. Fecal Coliforms/100ml.					655
						<input type="checkbox"/>	Plate Count-Org./ml.					599

3		Unfiltered		4 CHEMICAL ANALYSIS		PH, units	
mg/l	CATIONS	mg/l	ug/l (ppb)	mg/l	ANIONS	TOTAL METALS ANALYSIS ppm	
	Ammmonia as N	<input type="text"/>	722		Bicarbonate	<input type="text"/>	758
	Amnic	<input type="text"/>	723		Carbon Dioxide	<input type="text"/>	759
	Barium	<input type="text"/>	724		Carbonate	<input type="text"/>	760
	Boron	<input type="text"/>	725		Chloride	<input type="text"/>	763
	Cadmium	<input type="text"/>	727		CO <sub>3</sub> Solids	<input type="text"/>	
	Calcium	<input type="text"/>	728		Fluoride	<input type="text"/>	765
		<input type="text"/>	729		Hypocrite	<input type="text"/>	767
	Oxanium, Mol. as Cr	<input type="text"/>	730		Nitrate as N	<input type="text"/>	605
	Copper	<input type="text"/>	732		Nitrate as N	<input type="text"/>	606
	Iron, dissolved	<input type="text"/>	733		Phosphorus, Ortho as P	<input type="text"/>	607
	Land	<input type="text"/>	734		Silica, dissolved as SiO <sub>2</sub>	<input type="text"/>	750
	Magnesium	<input type="text"/>	737		Sulfate	<input type="text"/>	772
	Manganese	<input type="text"/>	738		pH 1:1	<u>  4.4  </u>	
	Mercur	<input type="text"/>	740		TOTAL ANIONS	<input type="text"/>	
		<input type="text"/>	742		GRAND TOTAL	<input type="text"/>	
		<input type="text"/>	743		Total Phosphorus	<input type="text"/>	785
		<input type="text"/>	744		Total Alk. as CaCO <sub>3</sub>	<input type="text"/>	752
		<input type="text"/>	745		T. Hons. as CaCO <sub>3</sub>	<input type="text"/>	754
		<input type="text"/>	749		Surfactant as MBAS	<input type="text"/>	773
	TOTAL CATIONS	<input type="text"/>			Turbidity, as NTU	<input type="text"/>	757
		<input type="text"/>			Sp. Gravity	<input type="text"/>	608
	SP. COND. ALTHOS/cm.	<input type="text"/>	762				
	TDS @ 180°C	<input type="text"/>	786				

RADIOLOGICS				INTERPRETATION OF ANALYSES:	
6		BOM		BOM	
	Alpha, gross		621	89 Sr	633
	Beta, gross		623	131 I	636
	Tritium, <sup>3</sup> H		625	134 Cs	637
	226 Radium		627	137 Cs	639
	228 Radium		629		
	on		631		

REMARKS:

RECEIVED

SEP 6 1984

Utah State Div. of  
Environmental Health

Based on State Standards, this sample was:

B.O.D.<sub>5</sub>

Tot. Sol. Solids

M.P.N. Total Coliform

M.P.N. Fecal Coliform





Rev. 3/82

Field No.

☒ TC  
☐ PC

☒ TM  
☐ PM

☐ Nut  
☐ BOD

☐ Pest.  
☐ Rad.  
☐ Bact.  
☒ Spec.

Date Recd.:

Received By:

UTAH STATE DEPARTMENT OF HEALTH  
ENVIRONMENTAL HEALTH  
WATER ANALYSES

Sample No. 707

Storet No. 707 Water Syst. No. 707 Source No. 707  
Date Collected 8/4/04 Time Collected 12:00 Water Rights No. 707  
yr. mo. dy. 24-hour clock  
Exact Description of sampling Point  
SPRING AT SOUTH WEN EXCHANGE  
OFF RYAN HANSEN, ELT  
Supply Owned by 712 Sample Type 710  
Sample Collected by SI HEIDEN 713  
SEND REPORT TO: Phone 532 4114  
SI M SAHMAN 716  
2100 S. 13th W. WASTE 648  
1500 N. TEMPE, ARIZONA 85110 717  
zip code 85110

114 Sample Source  
716  
01 Spring 14 Other  
02 Well 15 Tunnel  
03 Stream 18 Artesian  
04 Lake well  
06 Dist. syst. 19 Swimming  
07 Effluent pool  
08 Storm sewer

222 County  
611  
01. Culinary  
02. Agriculture  
03. Industrial  
04. Other  
Cost Code 365 770

1 FIELD TESTS  
Temperature (°C) 792 CO<sub>2</sub> mg/l 572  
D.O., mg/l 793 Depth, m 609  
So. Cond.  $\mu$ mhos 653 Cl Resid., mg/l 753  
pH 651 Flow, GPM 652  
So. Gravity 608 Flow, MGD 604  
Transparency, m 649 Flow, cfs 659

2 Temperature (°C) 650 pH 782 WASTEWATER ANALYSIS BACT. LAB. No.  
B.O.D.<sub>5</sub> mg/l 794 T.O.C. mg/l 671 M.P.N. Total Coliforms/100ml 658  
Tot. Sus. Solids 787 C.O.D. 777 M.P.N. Fecal Coliforms/100ml 657  
NO<sub>2</sub>-NO<sub>3</sub>-N 602 Cyanide 775 Fecal Strep C/100ml 656  
T.K.N. 778 Phenolics 783 M.F. Total Coliforms/100ml 654  
Oil & Grease 780 Sulfide 672 M.F. Fecal Coliforms/100ml 655  
Plate Count-Orig./ml 599

3 Filtered Unfiltered  
me/l mg/l ug/l (ppb)  
CATIONS  
Ammonia as N 722  
Arsenic 723  
Barium 724  
Boron 725  
Cadmium 727  
Calcium 1380 728  
Chromium 729  
Chromium, Hex. as Cr 730  
Copper 732  
Iron, dissolved 733  
Lead 734  
Magnesium 122 737  
Manganese 738  
Nickel 740  
Potassium 742  
Selenium 743  
Silver 744  
Sodium 311 745  
Zinc 749  
TOTAL CATIONS 31.0  
So. Cond.  $\mu$ mhos/cm. 2580 762  
TDS @ 130°C 2284 786

4 CHEMICAL ANALYSIS  
me/l mg/l  
ANIONS  
Bicarbonate 758  
Carbon Dioxide 759  
Carbonate 760  
Chloride 33 763  
CO<sub>2</sub> Solids 765  
Fluoride 163 767  
Hydrazide 767  
Nitrate as N 0.61 605  
Nitrite as N 0.01 606  
Phosphorus, Ortho as P 0.02 607  
Silica, dissolved as SiO<sub>2</sub> 57 750  
Sulfate 1473 772  
TOTAL ANIONS 31.6  
GRAND TOTAL  
Tot. Phosphorus 785  
Total Alk. as CaCO<sub>3</sub> 752  
T. Hons. as CaCO<sub>3</sub> 1450 754  
Surfactant as MBAS 773  
Turbidity, as NTU 1000 757  
Sp. Gravity 608

5 TOTAL METALS ANALYSIS ppm  
mg/l ug/l (ppb)  
CATIONS  
Aluminum 3750 601  
Arsenic 05 66  
Barium 01 80  
Beryllium 120 66  
Cadmium 16 66  
Cobalt 02 80  
Copper 01 66  
Gold 01 70  
Iron 318 66  
Lead 025 73  
Manganese 02 80  
Mercury 11 66  
Molybdenum 0028 66  
Nickel 144 66  
Selenium 20 67  
Silver 0028 66  
Uranium 0028 66  
Vanadium 0028 66  
Zinc 0028 66

6 RADIOLOGICS  
Alpha, gross 621 89 Sr 633  
Beta, gross 623 131 I 635  
Tritium, <sup>3</sup>H 625 134 Cs 637  
226 Radium 627 237 Cs 639  
228 Radium 629  
90 Sr 631  
Analyses Approved By: RSL Date: 8/4/06 By: ENVIRONMENTAL HEALTH

INTERPRETATION OF ANALYSES:  
Remarks:  
Based on State Standards, this sample was:  
B.O.D.<sub>5</sub>  
Tot. Sus. Solids  
M.P.N. Total Coliform.  
M.P.N. Fecal Coliform.

Date Recd.: \_\_\_\_\_

Received By: \_\_\_\_\_

UTAH STATE DEPARTMENT OF HEALTH  
ENVIRONMENTAL HEALTH  
ORGANIC RESIDUE ANALYSES

Sample No. 76.

Street No. <div style="border: 1px solid black; width: 100px; height: 20px;"></div>	Water Syst. No. Source No. <div style="border: 1px solid black; width: 100px; height: 20px;"></div>	Sample Source 718	County 627
Date Collected 705 <div style="border: 1px solid black; width: 100px; height: 20px;"></div>	Time Collected <div style="border: 1px solid black; width: 100px; height: 20px;"></div>	01 Spring 14 Other 02 Well 15 Tunnel 03 Stream 18 Artesian 04 Lake well 06 Dist. syst. 19 Swimming 07 Effluent pool 08 Storm sewer	C1 Bearer 16 Mute C2 Bear Eiger 17 Rich C3 Cadre 18 Salt Lake C4 Carbon 19 San Juan C5 Carbott 20 Sengate C6 Jarvis 21 Senger C7 Cucheno 22 Summit C8 Emory 23 Tooele C9 Gaffere 24 Winter C10 Grange 25 Utah C11 Iron 26 Wasatch C12 Judd 27 Washington C13 Kane 28 Wayne C14 Menden 29 Weber C15 Morgan
Water Rights No. <div style="border: 1px solid black; width: 100px; height: 20px;"></div>	707	Current use Proposed use—	706 705
Exact Description of Sampling Point <div style="border: 1px solid black; width: 100px; height: 40px;"></div>	646	1. Culinary 2. Agriculture 3. Industrial 4. Other	365
Supply Owned by <div style="border: 1px solid black; width: 100px; height: 20px;"></div>	Sample Type <div style="border: 1px solid black; width: 100px; height: 20px;"></div>	712	710
Sample Collected by <div style="border: 1px solid black; width: 100px; height: 20px;"></div>	713	INTERPRETATION OF ANALYSES: Remarks:	Based on State Standards, this sample was:
SEND REPORT TO: Phone <div style="border: 1px solid black; width: 100px; height: 20px;"></div>	715 648 717	By _____ ENVIRONMENTAL HEALTH	_____ _____ _____ _____ _____

8 CHLORINATED HYDROCARBONS ug/l(ppb)			10 HERBICIDES - GRP1 ug/l(ppb)			11 HERBICIDES - GRP2 Cont. ug/l(ppb)		
Dichloropropane		574	2,4-D		619	Prometryn		761
Dichloropropene		575	Atrazine		582	Propazine		764
Chlordane		516	Sulfur		532			
Toxapnene		618	Sodium Polysulfide		583			
Endosulfan		576	Bromacil		584			
Lindane		616	Simazine		585	12 CARBAMATES	1171E	ug/l(ppb)
Dicofol		577	Pronamide		566	Carbofuran		766
Methoxychlor		617	DCPA		587	Carbaryl		769
Dieldrin		643	EPTC		588	Maneb		771
Heptachlor		536	Dinocap		589	Metalkamate		776
Heptachlor epoxide		615	Dicamba		590	Aldicarb		779
Beta, BHC		520	Diuron		591	Propoxur		781
Perchlorobenzene, PCB		735	Monuron		592	Bendiocarb		784
Algin		699	Dinoseb		593	Benomyl		788
Endrin		613	Alachlor		594			
p,p' DDT		515	Cycloate		595			
p,p' DDE		511	Cyanazine		596	13 ORGANOHALOCARBONS		ug/l(ppb)
p,p' DDD		513	Nitrofen		597	Chloroform		790
Mirex		580	Copper Sulfate		533	Bromoform		791
			Trifluralin		598	Bromodichloromethane		795
			2,4-DB		675	Dibromochloromethane		796
			Terbutryn		676	Bromomethane		797
			Maleic Hydrazide		678	Carbon Tetrachloride		798
			Dacthal		679	Chloroethane		799
9 ORGANOPHOSPHATES	ug/l(ppb)		11 HERBICIDES - GRP2	ug/l(ppb)		Chloromethane		500
Ethyl Parathion		510	2, 4, 5- T		681	Dichlorobenzene		501
Malathion		578	Pyrazon		682	Dichloroethane		502
Ethyl Azinphos		512	Prometon		683	Methylene Chloride		503
Methyl Azinphos		534	Metaborate		684	Vinyl Chloride		504
Diazinon		514	Calapon		665			
Disulfoton		535	2,4,5-TP		620			
Methyl Parathion		517	Chlorate-Borate		686			
Fonofos		518	Aminoazide		687	14 OTHER	1171E	ug/l(ppb)
Phosalone		519	Captan		688	PCB 1254		674
Phosmet		520	Glyphosate		689	PCB 1260		581
Coumaphos		521	Picloram		690			
Fenthion		522	Methyl Bromide		691			
Phorate		523	Methyl Chloride		692			
Demeton		524	Amm. Methanarsonate		736			
Fensulfotnion		525	Terbacil		741			
Dichlorvos		526	Peraquat		746			
Trichlorfon		527	Acrolein		747			
Methyl Oxydemeton		528	Xylene		748			
Ronnel		529	Diquat		751			
Cyflomate		530	Amitrole		756			
Ethion		531						

None Detected (CALYPS)

None Detected

on other sheet

Analyses Approved By: [Signature]

Date: 6-7-84



APPENDIX 4

HRS SCORE

DRAFT -

Facility name:	Richardson's FLAT Tailings		
Location:	NW 1/4 Sec 1	T2S	R4E
EPA Region:	VIII		
Person(s) in charge of the facility:	United Park City Mines Co 309 KERNS BLDG SLC UTAA 84101		
Name of Reviewer:	Don Verbica	Date:	09/04/84
General description of the facility: (For example: landfill, surface impoundment, pile, container; types of hazardous substances; location of the facility; contamination route of major concern; types of information needed for rating; agency action, etc.)			
Richardson's Flat contains approx 7 million tons of mill tailings deposited by various local mines. The tailings are located in an active stream valley. The contamination routes scored are surface and ground water, no air was not scored			
Scores: $S_M = 36.19$ ( $S_{gw} = 44.90$ $S_{sw} = 43.84$ $S_a = 0$ ) $S_{FE} = 0$ $S_{DC} = 2.50$			

FIGURE 1  
HRS COVER SHEET

Ground Water Route Work Sheet						
Rating Factor	Assigned Value (Circle One)	Multi-plier	Score	Max. Score	Ref. (Section)	
<b>1</b> Observed Release	0 <u>45</u>	1		45	3.1	
If observed release is given a score of 45, proceed to line <b>4</b> . If observed release is given a score of 0, proceed to line <b>2</b> .						
<b>2</b> Route Characteristics					3.2	
Depth to Aquifer of Concern	0 1 2 3	2		6		
Net Precipitation	0 1 2 3	1		3		
Permeability of the Unsaturated Zone	0 1 2 3	1		3		
Physical State	0 1 2 3	1		3		
Total Route Characteristics Score				15		
<b>3</b> Containment	0 1 2 3	1		3	3.3	
<b>4</b> Waste Characteristics					3.4	
Toxicity/Persistence	0 3 6 9 12 15 <u>18</u>	1	18	18		
Hazardous Waste Quantity	0 1 2 3 4 5 6 7 <u>8</u>	1	8	8		
Total Waste Characteristics Score			26	26		
<b>5</b> Targets					3.5	
Ground Water Use	0 1 2 <u>3</u>	3	6	9		
Distance to Nearest Well/Population Served	0 4 6 8 10 12 <u>16</u> 18 20 24 30 32 35 40	1	16	40		
Total Targets Score			22	49		
<b>6</b> If line <b>1</b> is 45, multiply <b>1</b> x <b>4</b> x <b>5</b> If line <b>1</b> is 0, multiply <b>2</b> x <b>3</b> x <b>4</b> x <b>5</b>			25740	57,330		
<b>7</b> Divide line <b>6</b> by 57,330 and multiply by 100			$S_{gw} = 44.90$			

FIGURE 2  
GROUND WATER ROUTE WORK SHEET

Surface Water Route Work Sheet						
Rating Factor	Assigned Value (Circle One)	Multi-plier	Score	Max. Score	Ref. (Section)	
<b>1</b> Observed Release	0 <u>45</u>	1		45	4.1	
If observed release is given a value of 45, proceed to line <b>4</b> . If observed release is given a value of 0, proceed to line <b>2</b> .						
<b>2</b> Route Characteristics					4.2	
Facility Slope and Intervening Terrain	0 1 2 3	1		3		
1-yr. 24-hr. Rainfall	0 1 2 3	1		3		
Distance to Nearest Surface Water	0 1 2 3	2		6		
Physical State	0 1 2 3	1		3		
Total Route Characteristics Score				15		
<b>3</b> Containment	0 1 2 3	1		3	4.3	
<b>4</b> Waste Characteristics					4.4	
Toxicity/Persistence	0 3 6 9 12 15 <u>18</u>	1	18	18		
Hazardous Waste Quantity	0 1 2 3 4 5 6 7 <u>8</u>	1	8	8		
Total Waste Characteristics Score			26	26		
<b>5</b> Targets					4.5	
Surface Water Use	0 1 <u>2</u> 3	3	6	9		
Distance to a Sensitive Environment	<u>0</u> 1 2 3	2	0	6		
Population Served/Distance to Water Intake Downstream	0 4 6 8 10 12 16 <u>18</u> 20 24 30 32 35 40	1	18	40		
Total Targets Score			24	55		
<b>6</b> If line <b>1</b> is 45, multiply <b>1</b> x <b>4</b> x <b>5</b> If line <b>1</b> is 0, multiply <b>2</b> x <b>3</b> x <b>4</b> x <b>5</b>			28080	64,350		
<b>7</b> Divide line <b>6</b> by 64,350 and multiply by 100			S <sub>sw</sub> = 43.64			

FIGURE 7  
SURFACE WATER ROUTE WORK SHEET

Air Route Work Sheet						
Rating Factor	Assigned Value (Circle One)	Multi- plier	Score	Max. Score	Ref. (Section)	
<b>[1]</b> Observed Release	<u>0</u> 45	1		45	5.1	
Date and Location:						
Sampling Protocol:						
If line <b>[1]</b> is 0, the $S_a = 0$ . Enter on line <b>[5]</b> . If line <b>[1]</b> is 45, then proceed to line <b>[2]</b> .						
<b>[2]</b> Waste Characteristics					5.2	
Reactivity and Incompatibility	0 1 2 3	1		3		
Toxicity	0 1 2 3	3		9		
Hazardous Waste Quantity	0 1 2 3 4 5 6 7 8	1		8		
Total Waste Characteristics Score				20		
<b>[3]</b> Targets					5.3	
Population Within 4-Mile Radius	0 9 12 15 18 21 24 27 30	1		30		
Distance to Sensitive Environment	0 1 2 3	2		6		
Land Use	0 1 2 3	1		3		
Total Targets Score				39		
<b>[4]</b> Multiply <b>[1]</b> x <b>[2]</b> x <b>[3]</b>				35,100		
<b>[5]</b> Divide line <b>[4]</b> by 35,100 and multiply by 100				$S_a = 0$		

FIGURE 9  
AIR ROUTE WORK SHEET

	s	s <sup>2</sup>
Groundwater Route Score (S <sub>gw</sub> )	44.90	2015.92
Surface Water Route Score (S <sub>sw</sub> )	43.64	1904.45
Air Route Score (S <sub>a</sub> )	0	
$S_{gw}^2 + S_{sw}^2 + S_a^2$		3920.37
$\sqrt{S_{gw}^2 + S_{sw}^2 + S_a^2}$		62.61
$\sqrt{S_{gw}^2 + S_{sw}^2 + S_a^2} / 1.73 = S_M =$		36.19

FIGURE 10  
WORKSHEET FOR COMPUTING S<sub>M</sub>

Fire and Explosion Work Sheet									
Rating Factor	Assigned Value (Circle One)				Multi- plier	Score	Max. Score	Ref. (Section)	
<b>1</b> Containment	1		3		1		3	7.1	
<b>2</b> Waste Characteristics								7.2	
Direct Evidence	0		3		1		3		
Ignitability	0	1	2	3	1		3		
Reactivity	0	1	2	3	1		3		
Incompatibility	0	1	2	3	1		3		
Hazardous Waste Quantity	0	1	2	3	4	5	6	7	8
					1		8		
Total Waste Characteristics Score							20		
<b>3</b> Targets								7.3	
Distance to Nearest Population	0	1	2	3	4	5	1	5	
Distance to Nearest Building	0	1	2	3			1	3	
Distance to Sensitive Environment	0	1	2	3			1	3	
Land Use	0	1	2	3			1	3	
Population Within 2-Mile Radius	0	1	2	3	4	5	1	5	
Buildings Within 2-Mile Radius	0	1	2	3	4	5	1	5	
Total Targets Score							24		
<b>4</b> Multiply <b>1</b> x <b>2</b> x <b>3</b>							1,440		
<b>5</b> Divide line <b>4</b> by 1,440 and multiply by 100						SFE = 0			

FIGURE 11.  
FIRE AND EXPLOSION WORK SHEET

Direct Contact Work Sheet						
Rating Factor	Assigned Value (Circle One)		Multi- plier	Score	Max. Score	Ref. (Section)
<b>1</b> Observed Incident	0	45	1		45	8.1
If line <b>1</b> is 45, proceed to line <b>4</b> If line <b>1</b> is 0, proceed to line <b>2</b>						
<b>2</b> Accessibility	0	1 2 <b>3</b>	1	<b>3</b>	3	8.2
<b>3</b> Containment	0	<b>15</b>	1	<b>15</b>	15	8.3
<b>4</b> Waste Characteristics Toxicity	0	1 2 <b>3</b>	5	<b>3</b>	15	8.4
<b>5</b> Targets						8.5
Population Within a 1-Mile Radius	0	<b>1</b> 2 3 4 5	4	<b>4</b>	20	
Distance to a Critical Habitat	<b>0</b>	1 2 3	4	<b>0</b>	12	
Total Targets Score				<b>4</b>	32	
<b>6</b> If line <b>1</b> is 45, multiply <b>1</b> x <b>4</b> x <b>5</b> If line <b>1</b> is 0, multiply <b>2</b> x <b>3</b> x <b>4</b> x <b>5</b>				<b>540</b>	21,600	
<b>7</b> Divide line <b>6</b> by 21,600 and multiply by 100				SDC = <b>2.50</b>		

FIGURE 12  
DIRECT CONTACT WORK SHEET



## UNITED PARK CITY MINES COMPANY

## Water Quality Analysis

## Listing of Samples By Sample Location

Page 1 Date: 01/11/88

Sample Location	Sample Number	Sample Loc. Number	Sample Date	Cu (mg/l)	Cu-D (mg/l)	Hg (mg/l)	Mn (mg/l)	Pb (mg/l)	Pb-D (mg/l)	Zn (mg/l)	Zn-D (mg/l)	Cd (mg/l)	TDS (mg/l)	TSS (mg/l)	As (mg/l)	Record Number
Ag Cr Abv Pond	PCV 4	UPC 4	07/15/87	-.0005			.330	.180					-.004 730.00			1600
Ag Cr Abv Pond	PCV 4	UPC 4	08/03/87	-.0005			.033	.033					-.004 655.00			1605
Ag Cr Abv Pond	PCV 4	UPC 4	07/07/87	-.0005			.120	.020					-.004 628.00			1635
Ag Cr Abv Pond	PCV 4	UPC 4	06/05/87				.160	.050					-.004 720.00			1618
Ag Cr Abv Pond	PCV 4	UPC 4	05/06/87					.120	.020	.790	.560			3.00		1512
Ag Cr Abv Pond	PCV 4	UPC 4	11/05/86	-.0005			.360	.050					-.004 1053.0			1261
Ag Cr Abv Pond	PCV 4	UPC 4	10/10/86	-.0005			.170	.050					-.004 638.00			1244
Ag Cr Abv Pond	PCV 4	UPC 4	09/03/86	-.0005			.027	.050					-.004 642.00			925
Ag Cr Abv Pond	PCV 4	UPC 4	08/01/86	-.0005			.085	.033					-.004 615.00			910
Ag Cr Abv Pond	PCV 4	UPC 4	07/01/86	-.0005			.038	.020					-.007 604.00			895
Ag Cr Abv Pond	PCV 4	UPC 4	06/05/86	-.0005			.100	.070					-.004 260.00			879
Ag Cr Abv Pond	PCV 4	UPC 4	05/01/86	-.0005			.180	.030					-.004 648.00			864
Ag Cr Abv Pond	PCV 4	UPC 4	04/07/86	-.0005			.270	.083					-.004 760.00			849
Ag Cr Abv Pond	PCV 4	UPC 4	11/04/85	-.0005			.330	.050					-.004 638.00			313
Ag Cr Abv Pond	PCV 4	UPC 4	10/03/85	-.0005			.170	.120					-.004 583.00			334
Ag Cr Abv Pond	PCV 4	UPC 4	09/09/85	-.0005			.100	.050					-.004 729.00			349
Ag Cr Abv Pond	PCV 4	UPC 4	08/02/85	-.0005			.055	.033					-.004 558.00			364
Ag Cr Abv Pond	PCV 4	UPC 4	07/10/85	-.0005			.370	.050					-.004 648.00			379
Ag Cr Abv Pond	PCV 4	UPC 4	06/03/85	-.0005			.083	.050					-.004 498.00			325
Ag Cr Abv Pond	PCV 4	UPC 4	05/01/85	-.0005			.300	.180					661.00			415
Ag Cr Abv Pond	PCV 4	UPC 4	11/01/84	-.0005			.083	.067					-.004 552.00			489
Ag Cr Abv Pond	PCV 4	UPC 4	10/03/84	-.0005			.100	.067					-.004 600.00			504
Ag Cr Abv Pond	PCV 4	UPC 4	09/06/84	2.0000			.400	.780					-.004 456.00			523
Ag Cr Abv Pond	PCV 4	UPC 4	08/10/84	-.0005			.700	.067					-.004 1015.0			539
Ag Cr Abv Pond	PCV 4	UPC 4	07/03/84	-.0005			.370	.100					-.004 684.00			566
Ag Cr Abv Pond	PCV 4	UPC 4	06/08/84	-.0005			.130	.130					-.004 387.00			587
Ag Cr Abv Pond	PCV 4	UPC 4	11/01/83	-.0005			.100	.050					-.004 613.00			658
Ag Cr Abv Pond	PCV 4	UPC 4	10/06/83	-.0005			.670	1.300					-.008 586.00			672
Ag Cr Abv Pond	PCV 4	UPC 4	09/02/83	-.0005			.330	.033					-.004 830.00			697
Ag Cr Abv Pond	PCV 4	UPC 4	08/02/83	-.0005			.100	.050					-.014 726.00			708
Ag Cr Abv Pond	PCV 4	UPC 4	07/06/83	-.0005			.280	.050					-.004 496.00			724
Ag Cr Abv Pond	PCV 4	UPC 4	06/08/83	-.0044			.380	.900					-.004 303.00			745
Ag Cr Abv Pond	PCV 4	UPC 4	01/31/83	-.0005			.580	.020					-.009 720.00			815
Ag Cr Abv Pond	PCV 4	UPC 4	01/03/83	-.0008			.330	.170					-.004 659.00			1131
Ag Cr Abv Pond	PCV 4	NOR 4	12/03/82	-.0005			.320	.070					-.004 809.00			1112
Ag Cr Abv Pond	PCV 4	NOR 4	11/01/82	-.0005			.170	.050					-.004 602.00			1102
Ag Cr Abv Pond	PCV 4	NOR 4	10/01/82	-.0008			.380	.130					-.004 538.00			1089
Ag Cr Abv Pond	PCV 4	NOR 4	08/30/82	-.0005			.120	.030					-.005 719.00			1031
Ag Cr Abv Pond	PCV 4	NOR 4	08/07/82	-.0005			.170	.030					-.004 723.00			1062
Ag Cr Abv Pond	PCV 4	NOR 4	07/01/82	-.0005			.170	.070					-.004 554.00			1050
Ag Cr Abv Pond	PCV 4	NOR 4	06/01/82	-.0005			.430	.920					-.004 516.00			1018
Ag Cr Abv Pond	PCV 4	NOR 4	04/29/82	-.0007			.280	.350					-.004 491.00			1015

EXHIBIT 15-F

UNITED PARK CITY MINES COMPANY  
Water Quality Analysis  
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Sample Location	Sample Number	Sample Loc. Number	Sample Date	Cu (mg/l)	Cu-D (mg/l)	Hg (mg/l)	Mn (mg/l)	Pb (mg/l)	Pb-D (mg/l)	Zn (mg/l)	Zn-D (mg/l)	Cn (mg/l)	TDS (mg/l)	TSS (mg/l)	As (mg/l)	Record Number
Pond Div Ditch	PCV 5	UPC 5	09/09/87			-.0005	3.100	.067				-.004	1867.0			1661
Pond Div Ditch	PCV 5	UPC 5	08/03/87			-.0005	1.300	.020				-.004	1704.0			1646
Pond Div Ditch	PCV 5	UPC 5	07/07/87			-.0005	1.600	.050				-.004	1511.0			1636
Pond Div Ditch	PCV 5	UPC 5	06/05/87				1.400	.067				-.004	1300.0			1619
Pond Div Ditch	PCV 5	UPC 5	05/06/87					-.017	-.017	1.200	.760			2.40		1513
Pond Div Ditch	PCV 5	UPC 5	11/05/86			-.0005	1.100	.033				-.004	1476.0			1262
Pond Div Ditch	PCV 5	UPC 5	10/10/86			-.0005	.780	.067				-.004	1538.0			1245
Pond Div Ditch	PCV 5	UPC 5	09/03/86			-.0005	1.800	.050				-.004	1671.0			926
Pond Div Ditch	PCV 5	UPC 5	08/10/86			-.0005	.750	.050				-.004	1882.0			940
Pond Div Ditch	PCV 5	UPC 5	08/01/86			-.0005	.045	.050				-.004	1731.0			911
Pond Div Ditch	PCV 5	UPC 5	07/01/86			-.0005	1.200	.020				-.004	1693.0			896
Pond Div Ditch	PCV 5	UPC 5	06/05/86			-.0005	.230	-.017				-.004	1542.0			880
Pond Div Ditch	PCV 5	UPC 5	05/01/86			-.0005	.840	.020				-.004	687.00			865
Pond Div Ditch	PCV 5	UPC 5	04/07/86			-.0005	.580	.033				-.004	564.00			850
Pond Div Ditch	PCV 5	UPC 5	11/04/85			-.0005	.700	.042				-.004	1277.0			314
Pond Div Ditch	PCV 5	UPC 5	10/03/85			-.0005	1.200	.067				-.004	1570.0			335
Pond Div Ditch	PCV 5	UPC 5	09/09/85			-.0005	.600	.067				-.004	1610.0			350
Pond Div Ditch	PCV 5	UPC 5	08/02/85			-.0005	1.400	.042				-.004	1372.0			365
Pond Div Ditch	PCV 5	UPC 5	07/10/85			-.0005	1.600	.020				-.004	1520.0			380
Pond Div Ditch	PCV 5	UPC 5	06/03/85			-.0005	1.700	.050				-.004	1418.0			396
Pond Div Ditch	PCV 5	UPC 5	05/01/85			-.0005	2.000	.100				-.014	870.00			416
Pond Div Ditch	PCV 5	UPC 5	11/01/84			-.0005	.950	.050				-.004	1166.0			490
Pond Div Ditch	PCV 5	UPC 5	10/03/84			-.0005	1.100	.067				-.004	581.00			505
Pond Div Ditch	PCV 5	UPC 5	09/06/84			-.0005	.570	.067				-.004	1717.0			524
Pond Div Ditch	PCV 5	UPC 5	07/03/84			-.0005	.230	.053				-.004	1533.0			567
Pond Div Ditch	PCV 5	UPC 5	06/08/84			-.0005	.480	.033				-.004	655.00			588
Pond Div Ditch	PCV 5	UPC 5	11/01/83			-.0005	.170	.050				-.007	1419.0			658
Pond Div Ditch	PCV 5	UPC 5	10/06/83			-.0005	.170	.050				.016	1809.0			673
Pond Div Ditch	PCV 5	UPC 5	09/02/83			-.0005	.480	.050				-.004	1867.0			698
Pond Div Ditch	PCV 5	UPC 5	08/02/83			-.0005	.220	.050				.006	1762.0			709
Pond Div Ditch	PCV 5	UPC 5	07/06/83			-.0005	.530	.067				-.004	1604.0			723
Pond Div Ditch	PCV 5	UPC 5	06/08/83			-.0005	1.400	.050				-.004	1010.0			746
Pond Div Ditch	PCV 5	UPC 5	01/03/83			-.0005	3.200	.070				-.004	1343.0			1130
Pond Div Ditch	PCV 5	NOR 5	12/03/82			-.0005	.450	.050				-.004	839.00			1113
Pond Div Ditch	PCV 5	NOR 5	11/01/82			-.0005	9.500	.030				-.004	1192.0			1110
Pond Div Ditch	PCV 5	NOR 5	10/01/82			-.0005	1.400	.050				-.004	881.00			1090
Pond Div Ditch	PCV 5	NOR 5	08/30/82			-.0005	6.000	.080				.007	1979.0			1082
Pond Div Ditch	PCV 5	NOR 5	08/02/82			-.0005	6.100	.070				.006	2016.0			1066
Pond Div Ditch	PCV 5	NOR 5	07/01/82			-.0005	3.000	.080				.019	1640.0			1051
Pond Div Ditch	PCV 5	NOR 5	06/01/82			-.0005	3.100	.080				.034	1517.0			1019
Pond Div Ditch	PCV 5	NOR 5	04/29/82			-.0005	.330	.080				-.004	638.00			1016

## UNITED PARK CITY MINES COMPANY

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## Listing of Samples By Sample Location

Sample Location	Sample Number	Sample Loc. Number	Sample Date	Cu (mg/l)	Cu-D (mg/l)	Hg (mg/l)	Mn (mg/l)	Pb (mg/l)	Pb-D (mg/l)	Zn (mg/l)	Zn-D (mg/l)	Cd (mg/l)	TDS (mg/l)	TSS (mg/l)	As (mg/l)	Record Number
Ag Cr BLo Pond	PCV 6	UPC 6	09/09/87			-.0005	.320	.130				-.0004	723.00			1662
Ag Cr BLo Pond	PCV 6	UPC 6	08/03/87			-.0005	.110	.058								1647
Ag Cr BLo Pond	PCV 6	UPC 6	07/07/87			-.0005	.190	.120				-.0004	919.00			1637
Ag Cr BLo Pond	PCV 6	UPC 6	06/05/87				.240	.120				-.0004	750.00			1620
Ag Cr BLo Pond	PCV 6	UPC 6	05/06/87					.140	.025	.750	.370			3.70		1514
Ag Cr BLo Pond	PCV 6	UPC 6	11/05/86			-.0005	.300	.270				-.0005	886.00			1263
Ag Cr BLo Pond	PCV 6	UPC 6	10/10/86			-.0005	.230	.083				-.0004	636.00			1246
Ag Cr BLo Pond	PCV 6	UPC 6	09/03/86			-.0005	.370	.050				-.0004	629.00			927
Ag Cr BLo Pond	PCV 6	UPC 6	08/01/86			-.0005	.930	.050				-.0004	656.00			814
Ag Cr BLo Pond	PCV 6	UPC 6	07/01/86			-.0005	.057	.020				-.0004	569.00			897
Ag Cr BLo Pond	PCV 6	UPC 6	06/05/86			-.0005	.110	.040				-.0004	265.00			881
Ag Cr BLo Pond	PCV 6	UPC 6	05/01/86			-.0005	.073	.020				-.0004	590.00			866
Ag Cr BLo Pond	PCV 6	UPC 6	04/07/86			-.0005	.330	.017				-.0004	772.00			851
Ag Cr BLo Pond	PCV 6	UPC 6	11/04/85			-.0005	.350	.050				-.0004	664.00			315
Ag Cr BLo Pond	PCV 6	UPC 6	10/03/85			-.0005	.150	.050				-.0004	603.00			336
Ag Cr BLo Pond	PCV 6	UPC 6	09/09/85			-.0005	.180	.067				-.0004	709.00			351
Ag Cr BLo Pond	PCV 6	UPC 6	08/02/85			-.0005	.230	.033				-.0004	648.00			366
Ag Cr BLo Pond	PCV 6	UPC 6	07/10/85			-.0005	.420	.030				-.0004	782.00			381
Ag Cr BLo Pond	PCV 6	UPC 6	06/03/85			-.0005	.083	.050				-.0004	470.00			397
Ag Cr BLo Pond	PCV 6	UPC 6	05/01/85			-.0005	.210	.083				-.0004	652.00			417
Ag Cr BLo Pond	PCV 6	UPC 6	11/01/84			-.0005	.140	.067				-.0004	507.00			491
Ag Cr BLo Pond	PCV 6	UPC 6	10/03/84			-.0005	.500	.050				-.0004	1524.0			506
Ag Cr BLo Pond	PCV 6	UPC 6	09/06/84			2.1000	.350	.620				-.0004	481.00			525
Ag Cr BLo Pond	PCV 6	UPC 6	08/10/84			-.0005	.030	.067				-.0004	1122.0			541
Ag Cr BLo Pond	PCV 6	UPC 6	07/03/84			-.0005	.720	.100				-.0004	684.00			568
Ag Cr BLo Pond	PCV 6	UPC 6	06/08/84			-.0005	.120	.120				-.0004	403.00			589
Ag Cr BLo Pond	PCV 6	UPC 6	11/01/83			-.0005	.040	.070				-.0004	595.00			660
Ag Cr BLo Pond	PCV 6	UPC 6	10/06/83			-.0084	.680	1.500				-.0008	580.00			674
Ag Cr BLo Pond	PCV 6	UPC 6	09/02/83			-.0005	.420	.170				.0007	801.00			699
Ag Cr BLo Pond	PCV 6	UPC 6	08/02/83			-.0005	.170	.050				.0005	689.00			710
Ag Cr BLo Pond	PCV 6	UPC 6	07/06/83			-.0005	.300	.050				-.0004	476.00			725
Ag Cr BLo Pond	PCV 6	UPC 6	06/08/83			.0033	.320	.580				-.0004	295.00			747
Ag Cr BLo Pond	PCV 6	NOR 6	11/01/82			-.0005	.220	.050				-.0004	598.00			1111
Ag Cr BLo Pond	PCV 6	NOR 6	10/01/82			-.0005	.380	.100				-.0004	552.00			1091
Ag Cr BLo Pond	PCV 6	NOR 6	08/30/82			-.0005	.200	.030				-.0004	1506.0			1083
Ag Cr BLo Pond	PCV 6	NOR 6	08/02/82			-.0005	.320	.050				-.0004	708.00			1069
Ag Cr BLo Pond	PCV 6	NOR 6	07/01/82			-.0005	.270	.080				-.0004	596.00			1052
Ag Cr BLo Pond	PCV 6	NOR 6	06/01/82			.0022	.480	1.000				-.0004	330.00			1020
Ag Cr BLo Pond	PCV 6	NOR 6	04/29/82			-.0005	.250	.180				-.0004	529.00			1017

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Sample Location	Sample Number	Sample Loc. Number	Sample Date	Cu (mg/l)	Cu-D (mg/l)	Hg (mg/l)	Mn (mg/l)	Pb (mg/l)	Pb-D (mg/l)	Zn (mg/l)	Zn-D (mg/l)	Cd (mg/l)	TDS (mg/l)	TSS (mg/l)	As (mg/l)	Record Number
PCV Mon Well	DH 1	MW 1	09/09/87			-.0005	.067	.067				-.004	841.00			1663
PCV Mon Well	DH 1	MW 1	08/03/87			-.0005	.110	.035				-.004	919.00			1648
PCV Mon Well	DH 1	MW 1	07/07/87			-.0005	.052	.033				-.004	843.00			1630
PCV Mon Well	DH 1	MW 1	06/05/87				.470	.083				.006	1100.0			1621
PCV Mon Well	DH 1	MW 1	05/06/87			-.0005	.250	.080				-.004	1041.0			1507
PCV Mon Well	DH 1	MW 1	12/02/86			-.0005	.270	.083				-.004	1143.0			1541
PCV Mon Well	DH 1	MW 1	11/05/86			-.0005	.140	.033				-.004	1453.0			1264
PCV Mon Well	DH 1	MW 1	10/10/86			-.0005	.050	.050				.008	1163.0			1247
PCV Mon Well	DH 1	MW 1	09/03/86			-.0005	.012	.050				-.004	1216.0			728
PCV Mon Well	DH 1	MW 1	08/01/86			-.0005	.092	.040				-.004	1182.0			913
PCV Mon Well	DH 1	MW 1	07/01/86			-.0005	.160	.050				.013	1169.0			898
PCV Mon Well	DH 1	MW 1	06/05/86			-.0005	.140	.047				-.004	1471.0			862
PCV Mon Well	DH 1	MW 1	05/01/86			-.0005	.073	.030				-.004	1193.0			867
PCV Mon Well	DH 1	MW 1	04/07/86			-.0005	.180	.025				-.004	1262.0			854
PCV Mon Well	DH 1	MW 1	11/04/85			-.0005	.050	.042				.004	1208.0			316
PCV Mon Well	DH 1	MW 1	10/03/85			-.0005	.130	.067				.004	1223.0			337
PCV Mon Well	DH 1	MW 1	09/09/85			-.0005	.170	.050				.004	1243.0			352
PCV Mon Well	DH 1	MW 1	08/02/85			-.0005	.960	.042				.006	1187.0			367
PCV Mon Well	DH 1	MW 1	07/10/85			-.0005	.450	.020				.008	1189.0			383
PCV Mon Well	DH 1	MW 1	06/03/85			-.0005	.570	.067				.012	1210.0			398
PCV Mon Well	DH 1	MW 1	05/01/85			-.0005	.170	.067				-.004	1201.0			418
PCV Mon Well	DH 1	MW 1	11/01/84			-.0005	.083	.050				.000	1412.0			492
PCV Mon Well	DH 1	MW 1	10/03/84			-.0005	.300	.033				.008	1349.0			507
PCV Mon Well	DH 1	MW 1	09/06/84			-.0005	.250	.067				.010	1344.0			526
PCV Mon Well	DH 1	MW 1	08/10/84			-.0005	.350	.067				.007	1431.0			542
PCV Mon Well	DH 1	MW 1	07/03/84			-.0005	.320	.050				.007	1297.0			569
PCV Mon Well	DH 1	MW 1	06/08/84			-.0005	.100	.067				.006	1334.0			590
PCV Mon Well	DH 1	MW 1	11/01/83			-.0005	.350	.050				.067	1322.0			661
PCV Mon Well	DH 1	MW 1	10/06/83			-.0005	.370	.050				.025	1471.0			675
PCV Mon Well	DH 1	MW 1	09/02/83			-.0005	.420	.083				.016	1516.0			700
PCV Mon Well	DH 1	MW 1	08/02/83			-.0005	.900	.083				.036	1359.0			711
PCV Mon Well	DH 1	MW 1	07/06/83			-.0005	.530	.050				.017	1344.0			727
PCV Mon Well	DH 1	MW 1	06/08/83			-.0005	.880	.067				.024	1281.0			740
PCV Mon Well	DH 1	MW 1	11/01/82			-.0005	.400	.050				.035	1274.0			1097
PCV Mon Well	DH 1	MW 1	10/01/82			-.0005	.270	.070				.030	1216.0			1092
PCV Mon Well	DH 1	MW 1	08/30/82			-.0005	.530	.070				.032	1435.0			1076
PCV Mon Well	DH 1	MW 1	08/02/82			-.0005	.520	.030				.032	1429.0			1063
PCV Mon Well	DH 1	MW 1	07/01/82			-.0005	.680	.070				.021	1310.0			1045
PCV Mon Well	DH 1	MW 1	06/01/82			-.0005	.570	.080				.027	1268.0			1032
PCV Mon Well	DH 1	MW 1	04/29/82			-.0005	.570	.070				.027	1238.0			1029

## UNITED PARK CITY MINES COMPANY

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Sample Location	Sample Number	Sample Loc. Number	Sample Date	Cu (mg/l)	Cu-D (mg/l)	Hg (mg/l)	Mn (mg/l)	Pb (mg/l)	Pb-D (mg/l)	Zn (mg/l)	Zn-D (mg/l)	Cn (mg/l)	TDS (mg/l)	ISS (mg/l)	As (mg/l)	Record Number
PCV Mon Well	DH 3	MW 3	09/09/87			-.0005	6.200	.050				-.004	1639.0			1664
PCV Mon Well	DH 3	MW 3	08/03/87			-.0005	4.800	.020				-.004	1490.0			1640
PCV Mon Well	DH 3	MW 3	07/07/87			-.0005	5.400	.083				-.004	1374.0			1631
PCV Mon Well	DH 3	MW 3	06/05/87				5.000	.100				.005	1500.0			1622
PCV Mon Well	DH 3	MW 3	05/06/87			-.0005	4.200	.053				.005	1458.0			1508
PCV Mon Well	DH 3	MW 3	12/02/86			-.0005	4.500	.067				.004	1672.0			1542
PCV Mon Well	DH 3	MW 3	11/05/86			-.0005	2.900	.033				-.004	2046.0			1265
PCV Mon Well	DH 3	MW 3	10/10/86			-.0005	1.700	.067				-.004	1755.0			1248
PCV Mon Well	DH 3	MW 3	09/03/86			-.0005	4.000	.033				-.004	1539.0			929
PCV Mon Well	DH 3	MW 3	08/01/86			-.0005	2.500	.050				.007	1516.0			914
PCV Mon Well	DH 3	MW 3	07/01/86			-.0005	.950	.033				.004	1438.0			899
PCV Mon Well	DH 3	MW 3	06/05/86			-.0005	2.800	.040				.006	1338.0			883
PCV Mon Well	DH 3	MW 3	05/01/86			-.0005	.950	.020				-.004	1174.0			868
PCV Mon Well	DH 3	MW 3	04/07/86			-.0005	3.700	.017				-.004	1166.0			853
PCV Mon Well	DH 3	MW 3	11/04/85			-.0005	2.100	.050				-.004	1551.0			317
PCV Mon Well	DH 3	MW 3	10/03/85			-.0005	3.200	.067				.004	1484.0			338
PCV Mon Well	DH 3	MW 3	09/09/85			-.0005	3.600	.050				.005	1475.0			353
PCV Mon Well	DH 3	MW 3	08/02/85			-.0005	.630	.050				-.004	1342.0			368
PCV Mon Well	DH 3	MW 3	07/10/85			-.0005	1.900	.020				.006	1339.0			384
PCV Mon Well	DH 3	MW 3	06/03/85			-.0005	3.300	.067				.006	1173.0			399
PCV Mon Well	DH 3	MW 3	05/01/85			-.0005	2.100	.050				-.004	1109.0			419
PCV Mon Well	DH 3	MW 3	11/01/84			-.0005	3.800	.050				.005	1524.0			493
PCV Mon Well	DH 3	MW 3	10/03/84			-.0005	3.400	.067				.004	1676.0			508
PCV Mon Well	DH 3	MW 3	09/06/84			-.0005	.420	.050				-.004	1576.0			527
PCV Mon Well	DH 3	MW 3	08/10/84			-.0005	1.800	.083				-.004	1722.0			543
PCV Mon Well	DH 3	MW 3	07/03/84			-.0005	.870	.067				-.004	1401.0			570
PCV Mon Well	DH 3	MW 3	06/08/84			-.0005	2.600	.067				.004	1189.0			591
PCV Mon Well	DH 3	MW 3	11/01/83			-.0005	4.200	.070				.025	1879.0			662
PCV Mon Well	DH 3	MW 3	10/06/83			.0086	3.800	.067				.022	2168.0			676
PCV Mon Well	DH 3	MW 3	09/02/83			-.0005	3.400	.050				.006	2164.0			701
PCV Mon Well	DH 3	MW 3	08/02/83			-.0005	1.500	.050				.020	1662.0			712
PCV Mon Well	DH 3	MW 3	07/06/83			-.0005	1.200	.067				.010	1540.0			723
PCV Mon Well	DH 3	MW 3	06/08/83			-.0005	3.800	.120				.016	1625.0			741
PCV Mon Well	DH 3	MW 3	01/03/83			-.0005	6.600	.120				.008	1871.0			1132
PCV Mon Well	DH 3	MW 3	12/03/82			-.0005	5.700	.100				.004	2335.0			1114
PCV Mon Well	DH 3	MW 3	11/01/82			-.0005	.900	.050				.004	2148.0			1098
PCV Mon Well	DH 3	MW 3	10/01/82			-.0005	4.400	.050				-.004	1928.0			1053
PCV Mon Well	DH 3	MW 3	08/30/82			-.0005	3.300	.070				.009	2056.0			1077
PCV Mon Well	DH 3	MW 3	08/02/82			-.0005	2.600	.050				.016	1876.0			1064
PCV Mon Well	DH 3	MW 3	07/01/82			-.0005	2.800	.080				-.004	1630.0			1046
PCV Mon Well	DH 3	MW 3	06/01/82			-.0005	3.000	.080				.013	1492.0			1034
PCV Mon Well	DH 3	MW 3	04/29/82			-.0005	2.600	.080				.010	1265.0			1040

## UNITED PARK CITY MINES COMPANY

## Water Quality Analysis

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Sample Location	Sample Number	Sample Loc. Number	Sample Date	Cu (mg/l)	Cu-D (mg/l)	Hg (mg/l)	Mn (mg/l)	Pb (mg/l)	Pb-D (mg/l)	Zn (mg/l)	Zn-D (mg/l)	Cn (mg/l)	TDS (mg/l)	ISS (mg/l)	As (mg/l)	Record Number
PCV Mon Well	DH 4	MW 4	05/09/87	-.0005	9.800	.067	.280	.067	.280	.2583.0		.280	2583.0			1665
PCV Mon Well	DH 4	MW 4	08/03/87	-.0005	11.000	.035	.400	.035	.400	2593.0		.400	2593.0			1660
PCV Mon Well	DH 4	MW 4	07/07/87	-.0005	12.000	.050	.140	.050	.140	2556.0		.140	2556.0			1662
PCV Mon Well	DH 4	MW 4	06/05/87		11.000	.083	.960	.083	.960	2700.0		.960	2700.0			1623
PCV Mon Well	DH 4	MW 4	05/06/87	-.0005	6.200	.017	.780	.017	.780	1902.0		.780	1902.0			1509
PCV Mon Well	DH 4	MW 4	12/02/86	-.0005	2.300	.050	.004	.050	.004	689.00		.004	689.00			1548
PCV Mon Well	DH 4	MW 4	11/05/86	-.0005	11.000	.067	1.100	.067	1.100	2913.0		1.100	2913.0			1266
PCV Mon Well	DH 4	MW 4	10/10/86	-.0005	9.400	.083	.900	.083	.900	2531.0		.900	2531.0			1249
PCV Mon Well	DH 4	MW 4	09/03/86	-.0005	7.500	.067	.770	.067	.770	2553.0		.770	2553.0			930
PCV Mon Well	DH 4	MW 4	08/01/86	-.0005	8.400	.067	.900	.067	.900	2563.0		.900	2563.0			915
PCV Mon Well	DH 4	MW 4	07/01/86	-.0005	9.400	.170	.960	.170	.960	1609.0		.960	1609.0			900
PCV Mon Well	DH 4	MW 4	06/05/86	-.0005	11.000	.017	1.000	.017	1.000	2457.0		1.000	2457.0			884
PCV Mon Well	DH 4	MW 4	05/01/86	-.0005	12.000	.050	.120	.050	.120	2482.0		.120	2482.0			869
PCV Mon Well	DH 4	MW 4	04/07/86	-.0005	9.300	.067	1.200	.067	1.200	2532.0		1.200	2532.0			854
PCV Mon Well	DH 4	MW 4	11/04/85	-.0005	12.000	.067	1.600	.067	1.600	2651.0		1.600	2651.0			318
PCV Mon Well	DH 4	MW 4	10/03/85	-.0005	12.000	.130	1.200	.130	1.200	2659.0		1.200	2659.0			339
PCV Mon Well	DH 4	MW 4	09/09/85	-.0005	7.500	.067	.910	.067	.910	2662.0		.910	2662.0			354
PCV Mon Well	DH 4	MW 4	08/02/85	-.0005	10.000	.067	2.200	.067	2.200	2584.0		2.200	2584.0			369
PCV Mon Well	DH 4	MW 4	07/10/85	-.0005	7.500	.020	2.900	.020	2.900	2518.0		2.900	2518.0			385
PCV Mon Well	DH 4	MW 4	06/03/85	-.0007	8.600	.100	2.300	.100	2.300	2194.0		2.300	2194.0			400
PCV Mon Well	DH 4	MW 4	11/01/84	-.0005	9.700	.067	.006	.067	.006	2569.0		.006	2569.0			494
PCV Mon Well	DH 4	MW 4	10/03/84	-.0005	11.000	.067	2.100	.067	2.100	2693.0		2.100	2693.0			509
PCV Mon Well	DH 4	MW 4	09/06/84	-.0005	8.000	.100	1.400	.100	1.400	2648.0		1.400	2648.0			528
PCV Mon Well	DH 4	MW 4	08/10/84	-.0005	10.000	.099	1.500	.099	1.500	2713.0		1.500	2713.0			544
PCV Mon Well	DH 4	MW 4	07/03/84	-.0005	8.800	.100	1.400	.100	1.400	2660.0		1.400	2660.0			571
PCV Mon Well	DH 4	MW 4	06/08/84	-.0005	8.000	.100	.730	.100	.730	2183.0		.730	2183.0			592
PCV Mon Well	DH 4	MW 4	11/01/83	-.0005	9.200	.180	4.700	.180	4.700	2667.0		4.700	2667.0			666
PCV Mon Well	DH 4	MW 4	10/06/83	-.0005	8.300	.200	1.600	.200	1.600	2666.0		1.600	2666.0			677
PCV Mon Well	DH 4	MW 4	09/02/83	-.0005	10.000	.400	2.100	.400	2.100	2525.0		2.100	2525.0			702
PCV Mon Well	DH 4	MW 4	08/02/83	-.0005	9.800	.120	8.400	.120	8.400	2685.0		8.400	2685.0			713
PCV Mon Well	DH 4	MW 4	07/06/83	.0005	5.900	.067	1.600	.067	1.600	2120.0		1.600	2120.0			726
PCV Mon Well	DH 4	MW 4	06/08/83	-.0005	4.500	.130	1.700	.130	1.700	1893.0		1.700	1893.0			742
PCV Mon Well	DH 4	MW 4	11/01/82	-.0005	3.200	.180	1.200	.180	1.200	2908.0		1.200	2908.0			1099
PCV Mon Well	DH 4	MW 4	10/01/82	-.0005	6.100	.100	2.500	.100	2.500	2232.0		2.500	2232.0			1094
PCV Mon Well	DH 4	MW 4	08/30/82	-.0005	7.700	.070	3.700	.070	3.700	2800.0		3.700	2800.0			1078
PCV Mon Well	DH 4	MW 4	08/02/82	-.0005	8.300	.070	2.500	.070	2.500	2879.0		2.500	2879.0			1065
PCV Mon Well	DH 4	MW 4	07/01/82	-.0005	3.300	.120	2.200	.120	2.200	2230.0		2.200	2230.0			1047
PCV Mon Well	DH 4	MW 4	06/01/82	-.0005	2.000	.120	.056	.120	.056	1019.0		.056	1019.0			1034

## UNITED PARK CITY MINES COMPANY

## Water Quality Analysis

Page 1 Date: 01/11/88

## Listing of Samples By Sample Location

Sample Location	Sample Number	Sample Loc. Number	Sample Date	Cu (mg/l)	Cu-D (mg/l)	Hg (mg/l)	Mn (mg/l)	Pb (mg/l)	Pb-D (mg/l)	Zn (mg/l)	Zn-D (mg/l)	Cn (mg/l)	TDS (mg/l)	ISS (mg/l)	As (mg/l)	Record Number
PCV Mon Well	DH 5	MW 5	09/09/87			-.0005	14.000	.150				-.004	2435.0			1666
PCV Mon Well	DH 5	MW 5	08/03/87			-.0005	15.000	.033				-.004	2460.0			1631
PCV Mon Well	DH 5	MW 5	07/07/87			-.0005	16.000	.067				-.004	2318.0			1633
PCV Mon Well	DH 5	MW 5	06/05/87				16.000	.120				.006	2400.0			1624
PCV Mon Well	DH 5	MW 5	05/06/87			-.0005	14.000	.120				.005	2509.0			1510
PCV Mon Well	DH 5	MW 5	12/02/86			-.0005	11.600	.067				.004	1282.0			1544
PCV Mon Well	DH 5	MW 5	11/05/86			-.0005	13.000	.083				-.004	3102.0			1267
PCV Mon Well	DH 5	MW 5	10/10/86			-.0005	12.000	.083				.005	2464.0			1250
PCV Mon Well	DH 5	MW 5	09/03/86			-.0005	12.000	.067				.006	2458.0			931
PCV Mon Well	DH 5	MW 5	08/01/86			-.0005	14.000	.067				.005	2437.0			916
PCV Mon Well	DH 5	MW 5	07/01/86			-.0005	15.000	.067				.004	2465.0			901
PCV Mon Well	DH 5	MW 5	06/05/86			-.0005	15.000	.017				.005	2407.0			885
PCV Mon Well	DH 5	MW 5	05/01/86			-.0005	14.000	.050				-.004	2188.0			870
PCV Mon Well	DH 5	MW 5	04/07/86			-.0005	10.000	.050				-.004	2220.0			855
PCV Mon Well	DH 5	MW 5	11/04/85			-.0005	11.000	.067				.006	2635.0			315
PCV Mon Well	DH 5	MW 5	10/03/85			-.0005	13.000	.067				.005	2667.0			340
PCV Mon Well	DH 5	MW 5	09/09/85			-.0005	9.200	.067				.008	2401.0			335
PCV Mon Well	DH 5	MW 5	08/02/85			-.0005	15.000	.083				.011	2436.0			370
PCV Mon Well	DH 5	MW 5	07/10/85			-.0005	11.000	.020				.014	2333.0			306
PCV Mon Well	DH 5	MW 5	06/03/85			-.0005	14.000	.100				.007	2546.0			401
PCV Mon Well	DH 5	MW 5	05/01/85			-.0005	8.000	.067				-.004	2349.0			420
PCV Mon Well	DH 5	MW 5	11/01/84			.0005	12.000	.130				.350	2697.0			495
PCV Mon Well	DH 5	MW 5	10/03/84			-.0005	16.000	.100				.008	2840.0			510
PCV Mon Well	DH 5	MW 5	09/06/84			-.0005	13.000	.100				-.004	3039.0			529
PCV Mon Well	DH 5	MW 5	08/10/84			.0005	13.000	.230				-.004	2746.0			545
PCV Mon Well	DH 5	MW 5	07/03/84			-.0005	12.000	.100				.005	2781.0			572
PCV Mon Well	DH 5	MW 5	06/08/84			.0005	9.300	.100				.005	2324.0			593
PCV Mon Well	DH 5	MW 5	11/01/83			-.0005	12.000	.100				.024	2836.0			664
PCV Mon Well	DH 5	MW 5	10/06/83			-.0005	8.300	.120				.030	2506.0			678
PCV Mon Well	DH 5	MW 5	09/02/83			-.0005	10.000	.430				-.004	2261.0			703
PCV Mon Well	DH 5	MW 5	08/02/83			-.0005	9.200	.170				.200	3844.0			714
PCV Mon Well	DH 5	MW 5	07/06/83			-.0005	3.200	.033				.010	684.00			729
PCV Mon Well	DH 5	MW 5	06/08/83			-.0005	.70	.050				-.004	73.00			743
PCV Mon Well	DH 5	MW 5	12/03/82			-.0005	2.000	.050				-.004	1450.0			1115
PCV Mon Well	DH 5	MW 5	11/01/82			-.0005	9.300	.170				.006	3032.0			1100
PCV Mon Well	DH 5	MW 5	10/01/82			-.0005	7.000	.200				-.000	2315.0			1095
PCV Mon Well	DH 5	MW 5	08/30/82			-.0005	10.000	.220				.010	1197.0			1079
PCV Mon Well	DH 5	MW 5	08/02/82			-.0005	8.300	.150				.006	2101.0			1066
PCV Mon Well	DH 5	MW 5	07/01/82			-.0005	.700	.130				-.004	883.00			1048
PCV Mon Well	DH 5	MW 5	06/01/82			-.0005	.270	.120				-.004	96.00			1035

## UNITED PARK CITY MINES COMPANY

## Water Quality Analysis

## Listing of Samples By Sample Location

Page

1 Date: 01/11/88

Sample Location	Sample Number	Sample Loc.	Sample Date	Cu (mg/l)	Cu-D (mg/l)	Hg (mg/l)	Mn (mg/l)	Pb (mg/l)	Pb-D (mg/l)	Zn (mg/l)	Zn-D (mg/l)	Cd (mg/l)	TDS (mg/l)	TSS (mg/l)	As (mg/l)	Record Number
PCV Mon Well	DH 6	MW 6	09/07/87			-.0005	1.900	.033					974.00			1667
PCV Mon Well	DH 6	MW 6	08/03/87			-.0005	1.300	.020					1226.0			1652
PCV Mon Well	DH 6	MW 6	07/07/87			-.0005	1.700	.033					1435.0			1644
PCV Mon Well	DH 6	MW 6	06/05/87				2.000	.050					2460.0			1625
PCV Mon Well	DH 6	MW 6	05/06/87			-.0005	2.500	.017				.180	1130.0			1511
PCV Mon Well	DH 6	MW 6	12/02/86			-.0005	.130	.120				.004	680.00			1545
PCV Mon Well	DH 6	MW 6	11/05/86			-.0005	1.800	.067				.088	1588.0			1268
PCV Mon Well	DH 6	MW 6	10/10/86			-.0005	1.900	.083				.180	1354.0			1231
PCV Mon Well	DH 6	MW 6	09/03/86			-.0005	1.700	.067				.088	1402.0			932
PCV Mon Well	DH 6	MW 6	08/01/86			-.0005	2.000	.083				.330	1399.0			917
PCV Mon Well	DH 6	MW 6	07/01/86			-.0005	2.500	.067				.200	1489.0			902
PCV Mon Well	DH 6	MW 6	06/05/86			-.0005	2.800	.023				.190	1463.0			886
PCV Mon Well	DH 6	MW 6	05/01/86			-.0005	2.700	.020				.006	1526.0			871
PCV Mon Well	DH 6	MW 6	04/07/86			-.0005	2.800	.033				.190	1212.0			856
PCV Mon Well	DH 6	MW 6	11/04/85			-.0005	2.400	.050				.250	1298.0			320
PCV Mon Well	DH 6	MW 6	10/03/85			-.0005	2.400	.033				.086	1319.0			341
PCV Mon Well	DH 6	MW 6	09/09/85			-.0005	2.400	.033				.290	1314.0			356
PCV Mon Well	DH 6	MW 6	08/02/85			-.0005	2.900	.047				.980	1310.0			371
PCV Mon Well	DH 6	MW 6	07/10/85			-.0005	3.700	.020				.920	1304.0			387
PCV Mon Well	DH 6	MW 6	06/03/85			-.0005	4.000	.100				.019	1458.0			402
PCV Mon Well	DH 6	MW 6	05/01/85			-.0005	4.200	.050				.920	1281.0			421
PCV Mon Well	DH 6	MW 6	11/01/84			-.0005	3.100	.050				.008	1446.0			496
PCV Mon Well	DH 6	MW 6	10/03/84			-.0005	3.200	.067				.550	1417.0			511
PCV Mon Well	DH 6	MW 6	09/06/84			-.0005	3.500	.130				.310	1520.0			530
PCV Mon Well	DH 6	MW 6	08/10/84			-.0005	4.000	.130				.530	1510.0			546
PCV Mon Well	DH 6	MW 6	07/03/84			-.0005	3.800	.067				.260	1597.0			573
PCV Mon Well	DH 6	MW 6	06/09/84			-.0005	2.800	.067				.220	1080.0			594
PCV Mon Well	DH 6	MW 6	11/01/83			-.0005	3.200	.070				.018	1422.0			665
PCV Mon Well	DH 6	MW 6	10/06/83			-.0005	2.700	.050				.510	1288.0			679
PCV Mon Well	DH 6	MW 6	09/02/83			-.0005	2.900	.130				.520	1322.0			704
PCV Mon Well	DH 6	MW 6	08/02/83			-.0005	3.700	.083				4.600	2201.0			715
PCV Mon Well	DH 6	MW 6	07/06/83			-.0005	3.700	.050				.080	1260.0			730
PCV Mon Well	DH 6	MW 6	06/08/83			-.0005	1.700	.050				.032	644.00			744
PCV Mon Well	DH 6	MW 6	11/01/82			-.0005	2.500	.030				.740	1433.0			1101
PCV Mon Well	DH 6	MW 6	10/01/82			-.0005	1.700	.080				.026	936.00			1096
PCV Mon Well	DH 6	MW 6	08/30/82			-.0005	3.700	.150				.060	2973.0			1080
PCV Mon Well	DH 6	MW 6	07/01/82			-.0005	3.000	.120				.054	1141.0			1049
PCV Mon Well	DH 6	MW 6	06/01/82			-.0005	2.100	.270				-.004	972.00			1036
PCV Mon Well	DH 6	MW 6	04/29/82			-.0005	1.100	.280				.010	1725.0			1031



Telephone 363-3302

Hand Sample Serial.....3558

ASSAY REPORT  
**UNION ASSAY OFFICE, Inc.**

BRYANT L. LARSEN, President  
 JAMES G. STRATTON, Vice President  
 A. S. JOLLIFFE, Treasurer  
 MARK RAGSDALE, Secretary  
 P. O. Box 1528  
 Salt Lake City, Utah 84110  
 (801) 363-3302

Mine .....United Park City Mines Co

309 Kearns Bldg

S.L.C., UT

RESULTS PER TON OF 2000 POUNDS

Sept 8, 1987

NUMBER	GOLD Ozs. per Ton	SILVER Ozs. Per Ton	LEAD Per Cent	COPPER Per Cent	INSOL. Per Cent	ZINC Per Cent	SULPHUR Per Cent	<del>IRON</del> Per Cent	<del>COBALT</del> Per Cent	Per Cent	Per Cent
								CaCO3	Si	Al	
R Flot Tails	0.020	3.4	2.4			2.20		14.90	22.14	4.19	

Remarks.....P.O. SL-444

Charges \$.....73.00

May 2, 1973

BUREAU OF ENVIRONMENTAL HEALTH  
DIVISION OF HEALTH

MEMORANDUM

TO: File

FROM: Dennis Downs & Joel Smith

SUBJECT: Park City Solid Waste Disposal Site Inspection

On 5 April 1973, we met in Park City, Summit County with officials to inspect proposed new solid waste disposal site. New site was inspected and was found to have adequate soil for working and covering refuse. The area was so located that surface drainage would not be a problem. Trenches were dug to a depth of about 20 ft. and no ground water was observed. The site appeared to be very adequate for use as a solid waste disposal facility. Operation of a sanitary landfill was discussed with city officials.

Closing of the old dump was also discussed.

Those in attendance were:

Joel C. Smith, State Division of Health  
Dennis R. Downs, State Division of Health  
Keith Baily, Park City Manager  
Clem Hansen, Park City Councilman  
Jan Wilking, Greater Park City Corporation

# Park City Municipal Corporation

PARK CITY, UTAH  
WILLIAM P. SULLIVAN, MAYOR

April 10, 1973

RECEIVED

APR 30 1973  
Utah State Div. of Health  
Environmental Health

Dennis Downs  
Department of Health  
and Sanitation  
State of Utah

Dear Mr. Downs:

It was a pleasure meeting with you on April 5, 1973, concerning our 20 acre Sanitary Landfill Site. We believe that the proposed site should prove to be most successful for the Park City area. We, therefore, would like to make preparations to have this site dedicated as our Sanitary Landfill.

Enclosed you will find the following information that should put us well on our way to achieving the above goal:

- (1). Geological reconnaissance of the proposed Park City / Summit County Sanitary Landfill Site.
- (2). Map showing location, boundaries, description and size of proposed landfill.
- (3). Site Lease Agreement, with legal description.

The Park City Municipal Corporation and its City Manager will administer the Sanitary Landfill operation. The City Manager will be administrating officer and will see that proper management of the site is evident. We have yet to determine who will actually operate the landfill, but, whether we do it ourselves or contract the operation, our plans are for an exemplary Sanitary Landfill operation. The Park City Municipal Corporation will maintain jurisdiction regardless.

The City owns a D-6 caterpillar dozer and this can be housed on the site. A fence six feet high will be placed around a 2½ acre piece and moved as required.

There are approximately 1700 people living in the city of Park City. The adjacent areas of Park West, Synderville, and Summit Park would add an additional 600 people. We would

# Park City Municipal Corporation

PARK CITY, UTAH  
WILLIAM P. SULLIVAN, MAYOR

April 10, 1973

RECEIVED  
APR 30 1973  
Utah State Dept. of Health  
Environmental Health

project that by 1980, there could be 10,00 people using the Sanitary Landfill with no increase over 10,00 people. In any event, our 20 acre site will be adequate for at least a 20 year period.

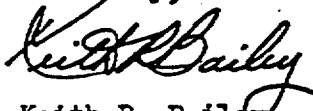
With a water table at about 30 feet below the surface, there should be no problem with subwater. All surface water will be directed around the Landfill Site. This will be a very minor problem.

It is our plan to abandon the old garbage site to Greater Park City Corporation. It is in our contract with Greater Park City Corporation that the city poison the dump and to supervise the covering process. We, the City, would like to involve the State Board of Health in the abandoning process.

The Park City Municipal Corporation would like to do everything possible to dedicate this site as their new Sanitary Landfill. We hope we have made the initial steps in this process. Please let me know how we stand and what we must do in the future to bring the dedication of this site about. We want it in use this Spring or early Summer.

Thank You!

Sincerely,



Keith R. Bailey  
City Manager

KRB/lm  
Enclosure

REPORT OF INVESTIGATION NO. 69

UTAH GEOLOGICAL & MINERALOGICAL SURVEY

RECEIVED

APR 30 1973

Utah State Div. of Health  
Environmental Health

GEOLOGICAL RECONNAISSANCE OF THE PROPOSED  
PARK CITY/SUMMIT COUNTY SANITARY LANDFILL SITE

By

Bruce N. Kaliser, Engineering Geologist  
Utah Geological and Mineralogical Survey

SEPTEMBER 27, 1972

GEOLOGICAL REPORT  
PARK CITY/SUMMIT COUNTY SANITARY LANDFILL SITE

The writer inspected the proposed site for a new sanitary landfill operation on Richardson Flat in Section 2, T.2S., R.4E., with Park City and Summit County officials on September 25, 1972. Twenty acres are available at the site for a sanitary landfill. The operation is to replace an open burning dump which has been in operation for decades at the foot of Masonic Hill, about 2-1/2 miles southwest of the newly proposed site.

The site is on an alluvial flat with the alluvial thickness probably increasing towards the north end. The writer can find no record of probings of the alluvium at the site so there is no knowledge of its thickness. To the west of the site there are records for two water wells. The data for these wells as extracted from the State Division of Water Rights' files is to be found in the Appendix to this report. Unfortunately the wells are too far removed from the site to provide data on geologic materials and the water table beneath the site. The wells tap groundwater from depths in excess of one hundred feet from fractured bedrock (andesite). It is likely that a water table shallower than this depth exists beneath the site.

Borings will be necessary to satisfactorily explore the site. Four borings are suggested to depths of 50 to 75 feet. One boring each should be located at the northeast and southwest extremities of the property and the other two about 665 feet southwest and northeast from the first two, respectively. The borings must be geologically logged and any water encountered must be noted. Water levels in the holes should be monitored for several days following completion of the borings.

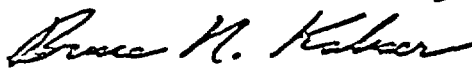
If saturated alluvium is encountered, a minimum of one hole should be set with perforated casing to monitor future water level fluctuation and to extract groundwater samples in the future. The hole should be pumped for a sample soon after its completion. Bacteriological and chemical analyses (complete) should be run for each water sample taken. Following the acquisition of this data an evaluation of the site can be made that can be presented to the State Division of Environmental Health.

Surface drainage in the site vicinity appears to be quite satisfactory. This will be especially true if the drainage barrier is re-established immediately to the south of the site so that flood runoffs will be diverted to flow in already existent drainage paths to the east.

The two backhoe-constructed testpits that were examined do not go sufficiently deep to determine the nature of the material to be removed. The top six or seven feet is a cobbly, gravelly silt. The deeper test hole exposed a clayey silt layer beneath the bed. The borings, supplemented with additional testpits should provide considerably more data on the fill material from which workability and handling judgements can be made. No serious problems are envisioned but cobbles may interfere in providing a thin daily cover and the silt will enable relatively deep frost penetration.

Upon taking the steps recommended herein a proper hydrogeological evaluation of the site can be made:

Submitted by:



Bruce N. Kaliser  
Engineering Geologist

APPENDIX

Well No. 34833 (D-2-4) 2 cbd  
Owner: Ray Wortley - new  
Location: 1144' S., 982' E. of W. 1/4 corner, Sec. 2, T 2S, R. 4E.  
Use: Domestic Drilling Method: Rotary  
Casing: 4-1/2" Perforations: 110-130 ft., 180-200 ft.  
No screen or gravel packing  
Static level: 42' (5/30/64) Discharge test: 30 gpm

Log:

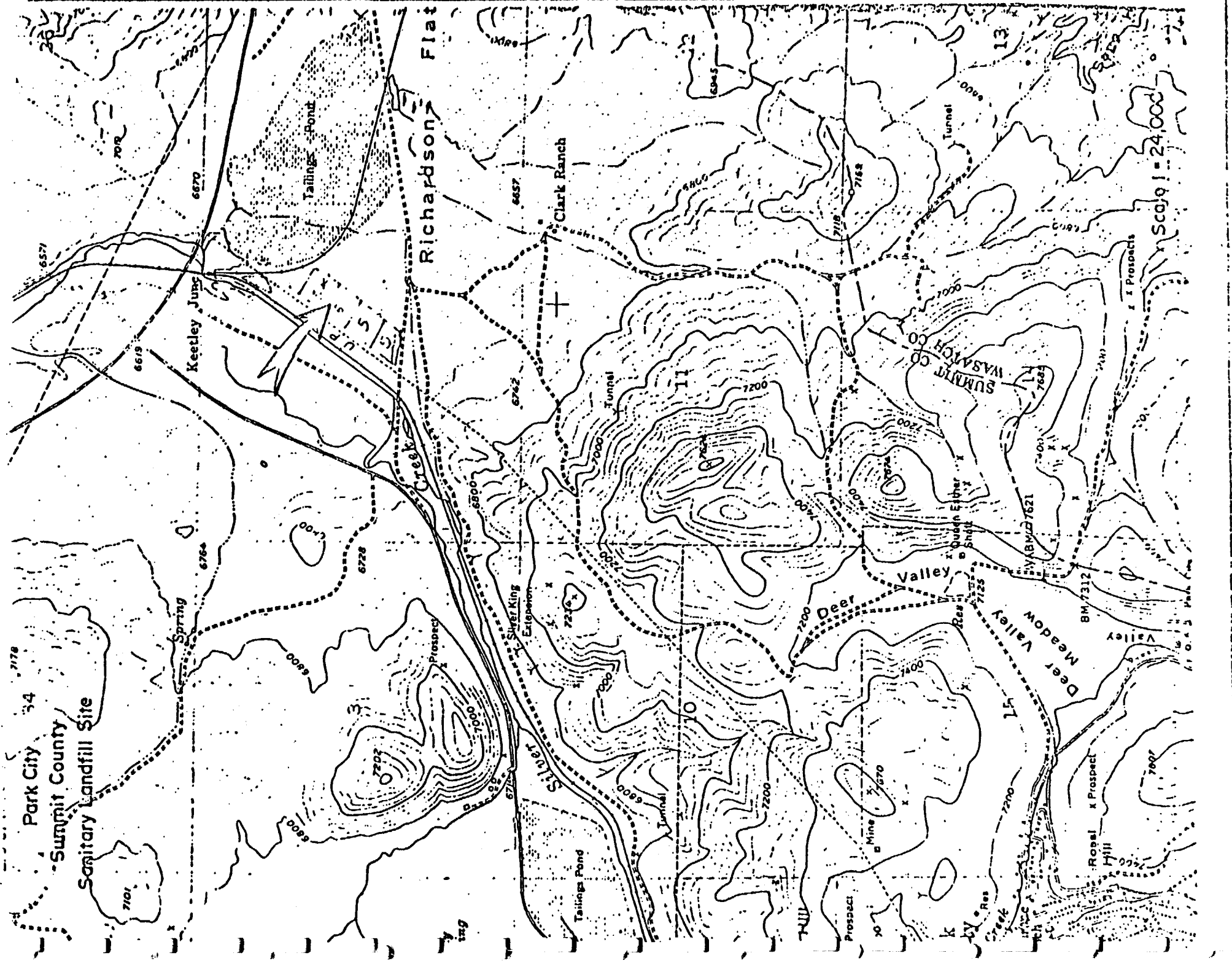
0 - 3'	soil
3 - 19'	clay
19 - 59'	andesite
59 - 65'	clay, moist
65 - 147'	red andesite
147 - 210'	grey andesite
210 - 216'	red shale
216 - 220'	gray sandstone



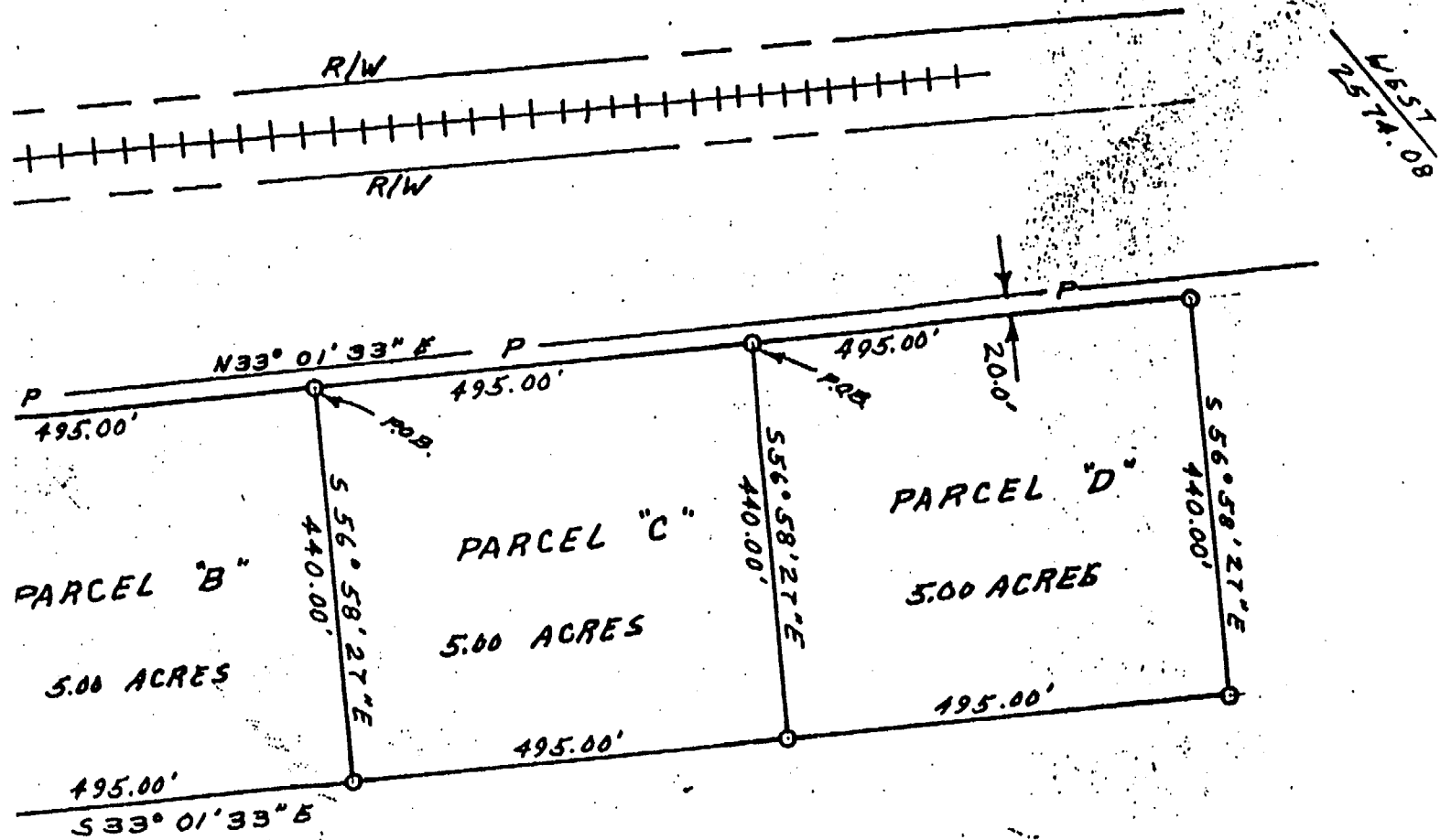
Well No. 34356 (D-2-4) 2 cb  
Owner: Mark Cornaby - new  
Location: 320' S., 812' E., W-1/4 corner, Sec. 2, T.2 N., R.4E.  
Use: Domestic Drilling Method: Rotary  
Casing: 6" Perforations: 165-171, 190-222 ft.  
No screen, gravel - 1/4" from 190-222 ft.  
Static level: 55' (8/19/62) Discharge test: -----

Log:

0 - 3'	soil
3 - 10'	brown clay
10 - 30'	yellow clay
30 - 90'	Decomposed andesite
90 - 95'	yellow clay
95 - 108'	andesite
108 - 130'	gray clay
150 - 175'	fractured andesite
175 - 198'	gray clay
198 - 207'	fractured andesite
207 - 214'	sand
214 - 221'	fractured andesite
221 - 222'	clay



Scale 1" = 24,000'





309 KEARNS BUILDING  
SALT LAKE CITY, UTAH 84101

June 4, 1985

MEMORANDUM

To: E. L. Osika, Jr.

From: Kerry C. Gee

Subject: Park City Municipal Corporation Noncompliance with certain Terms and Conditions Regarding the Operation of their Sanitary Landfill.

After careful review of the attached Exhibits A, B, C, and D and observations made during several visits to the Landfill site it is apparent that the City has not complied with certain sections of the original and amended leases (Exhibits A and B), the Utah State Code of Solid Waste Disposal Regulations (Exhibit C) and their plans as submitted to the State Division of Health (Exhibit D). In addition to violating specific agreements in the original lease, the City's dumping and filling has crossed over the described property boundaries. This has occurred to varying degrees along the western and eastern borders of the parcels. The specific items of noncompliance are detailed below.

ORIGINAL LEASE

1. Section 2, paragraphs b and c. These paragraphs state that the City shall complete final clean-up and compaction of the specified parcel in accordance with Section 6 of that document. This should have been completed before utilizing adjacent parcels for dump space. Final clean-up has not been done on Parcels A and B. The City is currently utilizing portions of Parcels A and B for the storage of junked cars and piles of fill dirt. The parcels have not been completely compacted nor have they been covered with any topsoil. The material exposed on the surface consists of a mixture of concrete and asphalt slabs of varying size, alluvial material and an assortment of construction material including wood, rebar, metal culverts and pipe. The alluvial material exposed contains boulders up to three feet in diameter and appears to have originated beneath the topsoil zone, which makes the establishment of any vegetation difficult.

2. Section 3. This section states that the City will utilize the leased premises "in accordance with accepted sanitary landfill refuse disposal procedures and in a safe and sanitary manner which is not unsightly, does not emit noxious odors and is not offensive or dangerous to owners or occupants of adjoining or surrounding property." On more than one occasion, companies or individuals leasing sand and gravel rights on adjacent United Park City Mines Company ground have complained to me about material being negligently dumped or blown into of the sand and gravel operations.
3. Section 4. This section states, in general, that the City's operations on the leased property will comply with all federal, state and local laws applicable to those operations. Paragraph (a) of the "Site Operation" section of the Utah State Code of Solid Waste Disposal Regulations stated "At least six inches of earth shall be placed after each operating day over all waste material after compaction to the smallest practical volume. A minimum of two feet of earth shall be placed over any completed segment of the site. Final grading shall provide effective surface drainage." A visit to the site on June 3, 1985 revealed that material observed being deposited on a visit on May 18, 1985 had been compacted but not yet covered. There were areas containing several thousand square feet of refuse that had not yet been covered by earth. On the Parcels that were complete, final grading to establish drainage had not yet been done.
4. Section 5. In this section of the original lease, the City agreed to fill the land to a level not over three feet above the natural terrain on the ground west and east of the proposed Landfill. Plate 1 is a map that shows very rough contours of the Landfill site. Portions of Parcels A and B are as much as fifteen feet above the natural terrain adjacent to the site. In the areas currently being utilized, the top of fill varies from one to twelve feet above the natural terrain.
5. Section 6. This section states that when the City is through with a Parcel of ground, it will compact the material to not less than 90% of maximum density and cover it with not less than two feet of topsoil. As mentioned earlier, the material has not been completely compacted nor has it been covered with any topsoil.

6. Section 7. In this section, the City agreed to maintain a six foot high fence around the portion of the property being utilized. At this time, there is a fence along the southwestern edge of the property adjacent to the old highway and down the western most edge of the Parcels for a distance of roughly 1,100 feet. The fence is not continuous around the property, is in a state of general disrepair and in places has been buried by concrete slabs and fill dirt.

VIOLATIONS IN THE FIRST AMENDMENT TO LEASE.

1. Section 3. In this section, the City agrees to use the extension to bring the status of the Landfill into compliance with the terms of the original lease, and was not to be used for any additional fill material. On a site visit made June 3, 1985, I noticed that material had been dumped on the extension that appeared to be from a source other than the original Landfill. This material extends over the boundary of the extension onto property not leased to the City. It appears that the City has used this extension to expand the Landfill rather than to utilize it for compliance with the original lease.
2. Section 4, Paragraph (a). The City agreed to complete all leveling and clean-up within 90 days of the amended lease dated August 1, 1981. As of this writing, the material on the Extension has not been leveled or cleaned-up.
3. Section 4, Paragraph (b). The City agreed to enclose the Extension with a chain link fence which has not been done.
4. Section 4, Paragraph (c). The City agreed to police and maintain a 400 foot perimeter around the leased area and the Extension and to promptly collect and properly dispose of any refuse within the area. This has not been done. There are abundant piles of asphalt and concrete slabs on the gravel pit access road west of the Landfill and numerous piles of garbage, trash and other debris scattered haphazardly all around the Landfill site and within this 400 foot perimeter. Paragraph (g) of the "Site Operation" section of the Utah State Code of Solid Waste Disposal Regulations states "litter control along access roads and at the site shall be

MEMORANDUM

June 4, 1985

Page 4

accomplished by clean-up of the areas as often as necessary to prevent unsightly conditions caused by blowing paper and other misplaced refuse." This has not been done. The entire route of U-248 from the Prospector Square area to the junction with the old highway and then along the old highway to the landfill is littered with trash, garbage and other debris to a point of almost causing a vehicle safety hazard. On more than one occasion, I have seen material falling or blowing off vehicles headed to the dump.

The City is currently operating the Landfill in Parcels C and D. Due to the high ground water level, the City has to dump refuse on top of the ground and bury it as apposed to digging and filling trenches. This practice will greatly decrease the amount of refuse that can be deposited within the present Landfill. It also makes it almost impossible for them to comply with the height requirement in Section 5 of the original lease.

LE A S E

THIS LEASE, made and entered into this 12<sup>th</sup> day of October, 1973, by and between UNITED PARK CITY MINES COMPANY, a Delaware corporation (hereinafter designated "UPC"), GREATER PARK CITY COMPANY, a Utah corporation (hereinafter designated "GPC"), and PARK CITY, a Utah municipal corporation (hereinafter designated "City"),

WITNESSETH:

WHEREAS, City maintains and operates a garbage dump and disposal area which is situated upon properties owned by UPC and which are subject to a Purchase Agreement whereby GPC has agreed to purchase said properties; and

WHEREAS, UPC and GPC (which parties are hereinafter collectively designated "Lessors") desire that City abandon and cease to use said dump site and that it utilize another area or areas for dumping and disposal purposes, and City is willing to do so upon the terms and conditions herein contained.

NOW, THEREFORE, for and in consideration of the mutual promises, covenants and agreements hereinafter set forth to be kept and performed by the parties hereto, Lessors hereby demise, lease and let to City all of the right and title of Lessors, and each of them, in and to the following described real property (hereinafter designated the "Leased Premises") situated in Summit County, State of Utah:



Parcel A

Beginning at a point on the Northerly right-of-way line of a County Road, said point being South 3252.39 feet and West 2574.08 feet from the Northeast corner of Section 2, Township 2 South, Range 4 East, Salt Lake Base and Meridian, and running thence North 33° 01'33" East 612.65 feet; thence South 56°58'27" East 440.00 feet; thence South 33°01'33" West 377.37 feet to the North right-of-way line of a County Road; thence North 85°06'30" West along said right-of-way line 498.95 feet to the point of beginning. Contains 5.00 acres.

Parcel B

Beginning at a point South 2738.73 feet and West 2240.18 feet from the Northeast corner of Section 2, Township 2 South, Range 4 East, Salt Lake Base and Meridian, and running thence North 33°01'33" East 495.00 feet; thence South 56°58'27" East 440.00 feet; thence South 33°01'27" West 495.00 feet; thence North 56°58'27" West 440.00 feet to the point of beginning. Contains 5.00 acres.

Parcel C

Beginning at a point South 2323.71 feet and West 1970.40 feet from the Northeast corner of Section 2, Township 2 South, Range 4 East, Salt Lake Base and Meridian, and running thence North 33°01'33" East 495.00 feet; thence South 56°58'27" East 440.00 feet; thence South 33°01'33" West 495.00 feet; thence North 56°58'27" West 440.00 feet to the point of beginning. Contains 5.00 acres.

Parcel D

Beginning at a point South 1908.69 feet and West 1700.62 feet from the Northeast corner of Section 2, Township 2 South, Range 4 East, Salt Lake Base and Meridian, and running thence North 33°01'33" East 495.00 feet; thence South 56°58'27" East 440.00 feet; thence South 33°01'33" West 495.00 feet; thence North 56°58'27" West 440.00 feet to the point of beginning. Contains 5.00 acres.

Together with an easement and right of way for a roadway forty (40) feet in width abutting and parallel to the Westerly boundaries of said parcels and

extending from the County Road which abuts the South boundary of the above described Parcel A and was formerly known as State Highway No. 6 to the portion of the Leased Premises then actively being utilized for dumping purposes pursuant hereto.

Expressly excepting and reserving to UPC all ores and minerals situated in, upon or under said Leased Premises, together with all rights in connection with or relative to the mining, removal and sale of the same.

TO HAVE AND TO HOLD unto City, its successors and assigns until terminated or surrendered, as herein provided.

In consideration of such leasing and of the covenants and agreements hereinafter set forth, it is mutually agreed by and between the parties hereto as follows:

1. City shall have the right to utilize the Leased Premises for the construction, utilization and maintenance of a well-engineered sanitary land fill-type garbage dump for the deposit and disposal of garbage and waste materials collected by or for City within the corporate limits of City. City agrees that it will not utilize the Leased Premises for any purposes other than those specified in this Section 1 without the written consent of Lessors having been first had and obtained.

2. (a) City shall be entitled to immediate possession of the portion of the Leased Premises designated as Parcel A but shall not be entitled to possession of any other parcel included in the Leased Premises, except at such times as are hereinafter in this Section 2 provided.

(b) At such time as City elects to obtain possession of and utilize Parcel B pursuant hereto, it shall give

written notice to Lessors, whereupon City shall be entitled to possession of Parcel B. Within sixty (60) days following delivery of said notice, City shall complete final cleanup and compaction of Parcel A in accordance with Section 6 hereof.

(c) At such time as City elects to obtain possession of and utilize Parcel C pursuant hereto, it shall give written notice to Lessors, whereupon City shall be entitled to possession of Parcel C. Within sixty (60) days following the delivery of said notice, City shall complete final cleanup and compaction of Parcel B in accordance with Section 6 hereof and shall deliver possession of Parcel B to Lessors, whereupon this Lease shall be deemed terminated insofar as it relates to Parcel B, and City shall thereafter have no right, title or interest in or with relation to said Parcel B.

(d) At such time as City elects to obtain possession of and utilize Parcel D pursuant hereto, it shall give written notice to Lessors, whereupon City shall be entitled to possession of Parcel D. Within sixty (60) days following the delivery of said notice, City shall complete final cleanup and compaction of Parcel C in accordance with Section 6 hereof and shall deliver possession of Parcel C to Lessors, whereupon this Lease shall be deemed terminated insofar as it relates to Parcel C, and City shall thereafter have no right, title or interest in or with relation to said Parcel C.

(e) At such time as City elects to relinquish possession of and the right to utilize Parcel D pursuant hereto,

it shall give written notice to Lessors. Within sixty (60) days following delivery of said notice, City shall complete final cleanup and compaction of Parcel D in accordance with Section 6 hereof and shall deliver possession of Parcel D to Lessors. Upon completion of final completion and compaction of Parcel D in accordance with Section 6 hereof and delivery of possession of Parcel D to Lessors, Lessors agree that they will execute and deliver to City a quitclaim deed, quitclaiming to City all of the right, title and interest of Lessors in and to Parcel A, subject to an exception and reservation to UPC of all ores and minerals situated in, upon or under said Parcel A, together with all rights in connection with or relating to the mining, removal or sale of the same, including, but not limited to, the right to enter upon or utilize such portion of Parcel A as it deems necessary or desirable for the purpose of exploring for, developing, mining and removing said ores and minerals. Lessors agree that they will not at any time prior to delivery of said quitclaim deed convey or dispose of any of the right, title or interest of Lessors in or to said Parcel A. Upon delivery of said quitclaim deed, this Lease shall be deemed terminated, and City shall thereafter have no right, title or interest under the terms of this Lease.

(f) City shall not at any time be entitled to possession of more than two (2) parcels of the real property included in the Leased Premises, except during the 60-day period following notice of the election of City to obtain

possession of and utilize an additional parcel, during which 60-day period City shall complete final cleanup and compaction of the parcel which it has elected to cease utilizing and surrender, as provided by this Section 2.

3. City agrees that it will, at all times during the term hereof, establish, maintain and utilize the Leased Premises, in accordance with accepted sanitary land-fill refuse disposal procedures and in a safe and sanitary manner which is not unsightly, does not emit noxious odors and is not offensive or dangerous to owners or occupants of adjoining or surrounding property.

4. City agrees that all operations upon or in connection with the Leased Premises will comply with all federal, state and local laws, rules and regulations applicable to the Leased Premises or the operations or activities conducted upon or in connection with the Leased Premises, including, but not limited to, the rules and regulations of the Utah State Board of Health, the Summit County Board of Health and all other applicable rules, regulations and orders of any duly constituted authority having jurisdiction over the use or operation of the Leased Premises by City.

5. City agrees that, in the utilization of the Leased Premises, it will fill the same to, but not above, a level determined by projecting a straight line between a point three (3) feet above the natural terrain on the easterly side and a point three (3) feet above the natural terrain on the westerly side of the portion of the Leased Premises then being filled.

6. City agrees that, upon completion of its utilization of a parcel of the Leased Premises and election by City to surrender the same to Lessors in accordance with Section 2 hereof, City will clean up and either bury or remove from the parcel which it elects to surrender all loose material and will compact the surface of said parcel to not less than ninety per cent (90%) of maximum density and will cover the entire surface thereof with a layer of topsoil not less than two (2) feet thick.

7. City agrees that, at all times during which it has possession of any portion of the Leased Premises pursuant hereto, it will maintain a six (6) foot high chain link fence surrounding the portion of the Leased Premises which is in the possession of City. Further, City agrees that said fence will be equipped with gates of the same type and of equal height which shall at all times either be locked or shall be attended by a representative of the City.

8. City agrees that it will indemnify, defend and hold Lessors, and each of them, harmless from any claims, demands or causes of action for injury to persons or property or in any other manner arising out of the possession, utilization or operation of the Leased Premises by City or any costs or expenses incurred by City in connection therewith. City agrees that it will, at all times during the term of this Lease, purchase and maintain public liability and property damage insurance designating City and Lessors as the insured

parties and covering the Leased Premises, as well as all operations upon the Leased Premises, which insurance shall be issued by a company or companies acceptable to Lessors and shall have limits of liability not less than as follows:

Public Liability:

Each Person	\$100,000
Each Occurrence	\$300,000

Property Damage:

Each Occurrence	\$100,000
Aggregate Liability	\$300,000

City agrees that it will furnish to Lessors a certificate or certificates issued by the appropriate insurance company or companies, certifying that such insurance is in effect and agreeing that such insurance will not be cancelled without giving at least ten (10) days' advance written notice to Lessors.

9. City agrees that it will, at all times during the term of this Lease, carry and maintain such insurance covering all persons working in, on or in connection with the Leased Premises as will fully comply with the requirements of the applicable laws of the State of Utah, covering workmen's compensation and occupational disease and disability, and that it will comply with the terms and provisions of all applicable laws of the United States and of the State of Utah pertaining to social security, unemployment compensation, wages, hours and conditions of labor. City agrees that it will indemnify,

defend and hold Lessors harmless from payment of any damages or other liability occasioned by failure of City to comply with said laws.

10. City agrees that it will assume, pay and discharge any and all liabilities, claims or demands arising out of labor or materials furnished to or for the benefit of City or the Leased Premises, or in any way connected with activities or work upon the Leased Premises, and that it will maintain the Leased Premises free and clear of any and all liens, claims or encumbrances of any type or description whatsoever arising out of the failure of City to make such payments when due. City agrees that, prior to commencement of construction of any addition to, alteration or repair of any building, structure or improvement upon the Leased Premises, it will obtain and deliver to Lessors a bond issued by an insurance company acceptable to Lessors, meeting the requirements of Section 14-1-1, Utah Code Annotated, 1953, and guaranteeing the prompt payment for materials furnished and labor performed in connection with said construction, addition, alteration or repair.

11. City agrees that it will, at all times during the term of this Lease, pay all taxes which are levied or assessed against the portions of the Leased Premises which are then being utilized or occupied by City, as well as any improvements, activities or operations thereon. If City has possession of a portion of the Leased Premises for a portion less than all of a calendar year, the real property taxes with relation thereto



shall be prorated based upon the portion of the calendar year during which possession thereof is held by City. City agrees that it will furnish to Lessors at least five (5) days before the final date upon which payment thereof becomes due receipts or other evidence satisfactory to Lessors, indicating that such taxes have been paid. The provisions of this Section 11 shall not limit or restrict the right of City to contest in good faith, by appropriate proceedings, any taxes which it feels are illegal or improperly assessed, provided that such action shall not place the title to the Leased Premises in jeopardy.

12. UPC specifically excepts and reserves all ores and minerals situated in, upon or under the Leased Premises, together with all rights in connection with or relating to the mining, removal or sale of the same, including, but not limited to, the right to enter upon or utilize such portion of the Leased Premises as it deems necessary or desirable for the purpose of exploring for, developing, mining and removing said ores and minerals.

13. Authorized representatives of Lessors shall have the right, at reasonable times and at the sole risk of Lessors and such representatives, to enter upon the Leased Premises and any improvements or facilities thereon for the purpose of inspecting the same and all operations and activities being conducted in connection therewith.

14. This Lease is executed by Lessors without warranties or representations as to title or otherwise. It is agreed that this Lease shall relate only to such titles as Lessors have in and with relation to the Leased Premises, and Lessors shall have no liability or obligation to City in the event that City should for any reason be divested of possession of any portion of the Leased Premises by persons claiming or holding title thereto.

City acknowledges and agrees that it has examined the Leased Premises and conducted such investigations and studies with relation thereto as it deems advisable and has satisfied itself as to the nature and condition of the Leased Premises, the uses to which they may be put and all pertinent factors with relation thereto. City acknowledges that Lessors have made no warranties or representations as to the Leased Premises of any type whatsoever. City agrees that it will accept the Leased Premises in the condition in which they now exist without representation or warranty, express or implied, in fact or by law, by Lessors, and without recourse against Lessors as to the nature, condition or usability thereof or the uses to which the Leased Premises may be put.

15. In the event that Lessors should elect to utilize any portion of the Leased Premises or to grant others the right to utilize the same, Lessors shall have the right to substitute for the real property comprising the Leased Premises as aforesaid other real property of a type, size and location which is not less suitable for use by City for the purposes

for which this Lease is granted. In the event that Lessors should elect to substitute other property pursuant to this Section 15, they shall give written notice of said fact to City, whereupon the parties shall execute an appropriate amendment to this Lease evidencing such substitution. Upon such substitution being accomplished and said amendment executed, this Lease shall be deemed terminated with relation to the portions of the above described real property for which such substitution has been made.

16. City agrees that, concurrently with the execution hereof, and as a consideration for the lease herein granted, City will execute, and cause to be executed by the other grantors named therein, a Quitclaim Deed in the form of Exhibit A attached hereto and by this reference made a part hereof. The execution and delivery of said Quitclaim Deed shall not be deemed a waiver or relinquishment of the rights of City under or in any manner affect that certain Lease dated May 20, 1971, between GPC, as "Lessor," and City, as "Lessee," which Lease relates to 9.2 acres used as a baseball field and park. Said Lease shall remain in force and effect and unaffected by said Quitclaim Deed.

17. City agrees that, within sixty (60) days following the date hereof, it will fumigate or cause to be fumigated and will fill, cover with a layer of topsoil not less than two (2) feet thick and compact the area presently being utilized by City as a garbage dump. GPC agrees that it will, without charge to City, furnish the earth-moving equipment necessary to complete

said filling and compaction, together with operators for said earth-moving equipment.

18. Should any default in any of the terms or provisions hereof occur, Lessors shall give written notice to City designating such asserted default. City shall thereafter have a period of thirty (30) days following the effective date of such notice within which to correct the defaults of which it has received notice. Should City fail to correct said defaults within said 30-day period, Lessors may, at their election, upon written notice to City, cancel and terminate this Lease. It is agreed that, in addition to the remedy of cancellation and termination as hereinabove in this Section 18 provided, Lessors shall have the right, by appropriate legal action, to compel specific performance by City of its obligations hereunder, to enjoin any default or breach by City, or to recover damages from City arising out of such breach or default.

19. Any notice herein contemplated to be given to Lessors shall be sufficient if given in writing by registered or certified mail and, in either case, addressed to:

United Park City Mines Company  
309 Kearns Building  
Salt Lake City, Utah 84101

and

Greater Park City Company  
P. O. Box 39  
Park City, Utah 84060

or to such other address or addresses as Lessors shall hereafter designate to City in writing.

Any notice herein contemplated to be given to City shall be sufficient if given in writing by registered or certified mail and, in either case, addressed to:

Park City Corporation  
City Hall  
Park City, Utah 84060

or to such other address or addresses as City shall hereafter designate to Lessors in writing.

Notices by mail shall be deemed effective and complete at the time of posting and mailing in accordance herewith.

20. In the event that title to the Leased Premises should be conveyed by UPC to GPC during the term of this Lease, GPC shall thereupon succeed to all rights, duties and obligations of Lessors hereunder, and UPC shall thereafter have no rights, duties or obligations as a Lessor hereunder.

In the event that the Purchase Agreement between UPC and GPC should at any time during the term hereof be terminated insofar as the Leased Premises are concerned, or in the event that GPC should surrender or convey to UPC all of its right, title and interest in and to the Leased Premises, UPC shall thereupon succeed to all rights, duties and obligations of the Lessors hereunder, and GPC shall thereafter have no rights, duties or obligations as a Lessor hereunder.

21. City shall not have the right to sell, assign, transfer or sublet any portion of its rights under this Lease, or any interest herein, without the written approval of Lessors having been first had and obtained.

22. Subject to the restrictions contained in Paragraph 21 hereof, this Lease is and shall be binding upon and inure to the benefit of the parties hereto and their respective successors and assigns.

23. This Lease shall be interpreted in accordance with the laws of the State of Utah.

Dated the day and year first above written.

UNITED PARK CITY MINES COMPANY

By [Signature]  
President

ATTEST:

[Signature]  
Secretary

GREATER PARK CITY COMPANY

By [Signature]  
President

ATTEST:

Assistant Secretary

PARK CITY, a Utah municipal corporation

By [Signature]  
Mayor

ATTEST:

[Signature]  
Clerk

STATE OF UTAH            )  
                              : ss.  
COUNTY OF SALT LAKE    )

On this 12<sup>th</sup> day of October, 1973, personally appeared before me MILES P. ROMNEY, who, being by me duly sworn, did say that he is the President of UNITED PARK CITY MINES COMPANY, a Delaware corporation, and that the within and foregoing Lease was signed in behalf of said corporation by authority of a resolution of its Board of Directors, and said MILES P. ROMNEY duly acknowledged to me that said corporation executed the same and that the seal affixed is the seal of said corporation.

My Commission Expires:

June 8, 1975

Harmon Johnson  
Notary Public

Residing at Salt Lake City, Utah

STATE OF UTAH            )  
                              : ss.  
COUNTY OF SUMMIT        )

On this 12<sup>th</sup> day of October, 1973, personally appeared before me J. WARREN KING, who, being by me duly sworn, did say that he is the President of GREATER PARK CITY COMPANY, a Utah corporation, and that the within and foregoing Lease was signed in behalf of said corporation by authority of a resolution of its Board of Directors, and said J. WARREN KING duly acknowledged to me that said corporation executed the same and that the seal affixed is the seal of said corporation.

My Commission Expires:

June 8, 1975

Harmon Johnson  
Notary Public

Residing at: Salt Lake City, Utah.

STATE OF UTAH     )  
                              : ss.  
COUNTY OF SUMMIT )

On this 4th day of October, 1971, personally appeared before me William Sullivan, who, being by me duly sworn, did say that he is the Mayor of PARK CITY, a Utah municipal corporation, and that the within and foregoing Lease was signed in behalf of said corporation by authority of a resolution of the Park City Commission, and said ~~that~~ William Sullivan duly acknowledged to me that said corporation executed the same and that the seal affixed is the seal of said corporation.

My Commission Expires:

1-11-74

Jim Wilkerson Jr  
Notary Public

Residing at:



QUITCLAIM DEED

For and in consideration of the sum of Ten Dollars (\$10.00) and other good and valuable consideration, receipt and sufficiency whereof are hereby acknowledged, PARK CITY, a Utah municipal corporation, and ERNEST F. FUELLING and FUELLING, his wife (hereinafter designated "Grantors"), hereby release, remise and forever quitclaim unto UNITED PARK CITY MINES COMPANY, a Delaware corporation, all of the right, title and interest of Grantors, and each of them, in and to the following described real property situated in Summit County, State of Utah:

Beginning at a point which is South 89°25' East 2,368.07 feet from the center of Section 8, Township 2 South, Range 4 East, Salt Lake Meridian;  
thence South 49°21'04" East 260.97 feet;  
thence South 76°11'06" East 439.72 feet;  
thence South 00°52'53" East 260.03 feet;  
thence South 49°56'21" East 287.45 feet;  
thence South 720.00 feet;  
thence East 201.00 feet;  
thence South 09°41'20" East 415.93 feet;  
thence South 15°57'54" East 338.78 feet;  
thence North 79°51'31" East 66.95 feet;  
thence North 76°22'45" East 212.53 feet;  
thence North 28°43' West 59.50 feet;  
thence North 34°35' West 157.00 feet;  
thence North 70°00'29" East 215.00 feet;  
thence North 74°24'15" East 49.11 feet;  
thence North 64°47'30" East 175.00 feet;  
thence South 25°12'30" East 140.00 feet;  
thence South 87°45'03" East 684.68 feet;  
thence South 2°19'38" East 376.31 feet;  
thence South 8°09'09" East 363.65 feet;  
thence South 89°29'30" East 50.00 feet;  
thence South 15°56'25" East 174.25 feet;  
thence South 20°08'45" East 120.10 feet;

EXHIBIT A

thence South 24°55'01" East 120.11 feet;  
 thence South 28°32'25" East 191.05 feet;  
 thence South 00°45'47" West 95.00 feet;  
 thence South 30°50'41" East 925.68 feet;  
 thence North 58°02' East 275.00 feet;  
 thence South 31°58' East 682.40 feet;  
 thence South 58°02' West 67.30 feet;  
 thence South 34°35' East 212.74 feet;  
 thence East 167.16 feet;  
 thence North 00°34'06" East 2,072.88 feet;  
 thence North 89°18' West 2.98 feet;  
 thence North 289.25 feet;  
 thence North 82°14' East 30.90 feet;  
 thence North 16°15' West 240.00 feet;  
 thence North 80°43' East 37.00 feet;  
 thence North 799.90 feet;  
 thence South 89°31' East 1,348.62 feet;  
 thence North 01°20'32" East 1,330.05 feet;  
 thence North 89°49'11" West 2,643.32 feet;  
 thence North 600.00 feet;  
 thence South 52° West 174.89 feet;  
 thence South 56° West 124.93 feet;  
 thence South 60°35' West 164.92 feet;  
 thence South 64°40' West 207.91 feet;  
 thence South 72°20' West 799.72 feet;  
 thence North 89°34'45" West 1,318.90 feet;  
 thence North 89°25'00" West 261.83 feet  
 to the point of beginning.

Excluding therefrom the following:

Beginning at the Northwest corner of the  
 Southwest Quarter of Section 9, Township  
 2 South, Range 4 East, Salt Lake Meridian;  
 thence South 20.0 feet;  
 thence South 89°00' East 76.0 feet;  
 thence South 73°48' East 63.5 feet;  
 thence South 65°40' East 84.0 feet;  
 thence East 176 feet;  
 thence North 33°00' West 87.5 feet;  
 thence West 342 feet to the point of  
 beginning.

Beginning at a point which is North 89°34'  
 44" West 832 feet from the Northeast corner  
 of the Southwest Quarter of Section 9, Town-  
 ship 2 South, Range 4 East, Salt Lake Merid-  
 ian; thence North 89°34'45" West 180 feet;  
 thence South 00°25'06" East 140 feet;  
 thence South 89°34'45" East 180 feet;  
 thence North 00°25'06" West 140 feet  
 to the point of beginning.

Beginning at a point located 1,579 feet East and 360 feet North of the Southwest corner of Section 9, Township 2 South, Range 4 East, Salt Lake Meridian; thence South 23°30' East 55 feet; thence North 59°32'30" East 43.4 feet; thence North 31°18' West 52.0 feet; thence South 60°38' West 136 feet to the point of beginning.

Dated this 4th day of October, 1973.

PARK CITY, a Utah municipal corporation

ATTEST:

By William P. Sullivan  
Mayor

Walter T. Terry  
Clerk

Ernest F. Fuelling

Fuelling

STATE OF UTAH     )  
                              : ss.  
COUNTY OF SUMMIT )

On this \_\_\_\_\_ day of \_\_\_\_\_, 1971, personally appeared before me \_\_\_\_\_, who, being by me duly sworn, did say that he is the Mayor of PARK CITY, a Utah municipal corporation, and that the within and foregoing Quitclaim Deed was signed in behalf of said corporation by authority of a resolution of the Park City Commission, and said \_\_\_\_\_ duly acknowledged to me that said corporation executed the same and that the seal affixed is the seal of said corporation.

My Commission Expires: \_\_\_\_\_ Notary Public  
\_\_\_\_\_ Residing at:

STATE OF UTAH     )  
                              : ss.  
COUNTY OF SUMMIT )

On this \_\_\_\_\_ day of \_\_\_\_\_, 1971, personally appeared before me ERNEST F. FUELLING and \_\_\_\_\_ FUELLING, his wife, signers of the foregoing Quitclaim Deed, who duly acknowledged to me that they executed the same.

My Commission Expires: \_\_\_\_\_ Notary Public  
\_\_\_\_\_ Residing at:

FIRST AMENDMENT

TO

LEASE

THIS FIRST AMENDMENT TO LEASE, dated effective as of August 1, 1981, is by and between UNITED PARK CITY MINES COMPANY, a Delaware corporation, and NORANDA MINING INC., a Delaware corporation (herein collectively called "Lessors"), and PARK CITY MUNICIPAL CORPORATION, a Utah municipal corporation (herein called "Lessee").

RECITALS

A. United Park City Mines Company and Greater Park City Company executed and delivered to Lessee that certain Lease dated October 12, 1973 (herein called the "Basic Lease") for purposes of operating and maintaining a municipal sanitary landfill on certain property in Summit County, Utah now owned and controlled by Lessors and more particularly described in the Basic Lease (herein called the "Leased Premises").

B. Lessee has requested that certain additional property consisting of 1.035 acres, more or less, adjacent to the Leased Premises (herein called the "Extension") be added to the Leased Premises so that Lessee can fully comply with certain of the terms and conditions of the Basic Lease.

C. Lessors desire to amend the Basic Lease and to lease the Extension to Lessee for the sole purpose of assisting Lessee in Lessee's efforts to fully comply with all of the terms and conditions of the Basic Lease and to bring the condition of the landfill into compliance with the depth of fill and cover requirements of the Basic Lease.

#### AGREEMENT

IN CONSIDERATION of the foregoing and of the promises, covenants and agreements contained herein, Lessors and Lessee agree as follows:

1. Grant. Lessors hereby lease to Lessee, and the Basic Lease is hereby amended by adding to the Leased Premises the nonexclusive right to use the Extension, consisting of a 1.035 acre parcel, more or less, more particularly described in Exhibit "A" attached hereto and made a part hereof. The non-exclusive grant of the Extension is subject to all the terms and conditions of the Basic Lease and reserves to Lessors all of the same rights and privileges reserved in the Basic Lease with respect to the grant of the Leased Premises.

2. Confirmation of Basic Lease. Except as specifically set forth herein, all terms and conditions of the Basic Lease shall remain in full force and effect and shall apply with equal force and effect to the Extension; provided, however, that if any provisions of this Amendment shall in any way conflict with the provisions of the Basic Lease, the provisions of this Amendment shall control.

3. Limitations on Use of the Extension. The parties agree that the Extension is to be used solely for the purpose of bringing the existing use of the Leased Premises into full compliance with the terms and conditions of the Basic Lease and, in particular, sections two, five and six of the Basic

Lease. The Extension shall not be used as additional space for new fill or for any other activity.

4. Additional Covenants by Lessee. (a) Lessee covenants and agrees that it will promptly commence the clean-up and leveling of the existing landfill by utilizing the Extension to the extent possible. Lessee agrees to complete such clean-up and leveling within 90 days.

(b) As soon as practical following the clean-up and leveling described in (a) above, Lessee shall enclose the Extension with a suitable chain link fence.

(c) Lessee further agrees to police and maintain the perimeter of the Leased Premises and the Extension to a distance of 400 feet from such perimeter and to promptly collect and dispose of any refuse, garbage or other waste placed within that area.

5. Term. The term of this Amendment shall commence upon the date first written above and shall continue until such time as the Basic Lease terminates or expires.

6. Warranties. This Amendment is entered into without any warranties, express or implied, on the part of Lessors as to title or otherwise and Lessee agrees that it will accept the Extension and title to the Extension in the condition in which they now exist.

7. Invalidity of Particular Provisions. If any term or provision of the Basic Lease or this Amendment or the application thereof to any person or circumstances shall, to any extent, be invalid or unenforceable, the remainder of the Basic Lease and this Amendment, or the application of such term or

provision to persons or circumstances other than those as to which it is held invalid or unenforceable, shall not be affected thereby, and each term and provision of the Basic Lease and this Amendment shall be valid and be enforced to the fullest extent permitted by law.

8. Attorneys' Fees. In the event any action is required to enforce the terms and conditions of this Amendment or of the Basic Lease, whether or not such action involves initiation of formal legal proceedings, the prevailing party in such action shall be entitled to recover from the other party all costs, expenses and attorneys' fees related to such action.

9. Notices. (a) Any and all notices or other communications or documents which may be required or given by the terms and provisions of the Basic Lease and this Amendment or otherwise, shall be in writing and shall be deemed to have been duly given when sent by registered mail, postage prepaid, and deposited with a United States Post Office, Branch Post Office, Post Office Station or Substation regularly maintained, as follows:

Lessee:

Park City Corporation  
City Hall  
Park City, Utah 84060

Lessors:

Noranda Mining Inc.  
Ontario Project  
P. O. Box 1450  
Park City, Utah 84060  
Attn: John Cesar, Area Production Manager

and

United Park City Mines Company  
309 Kearns Building  
Salt Lake City, Utah 84101  
Attn: E. L. Osika, Secretary-Treasurer

(b) Lessee or Lessors may designate in writing such other addresses or such other Agent or Agents from time to



time. The postmark date shall be deemed to be the date of service.

10. No Oral Modification. All prior understandings and agreements between the parties are merged within this Amendment, which together with the Basic Lease fully and completely sets forth the understanding of the parties; and the Basic Lease and this Amendment may not be further changed in any manner other than by an agreement in writing and signed by the party against whom enforcement of the change or termination is sought.

11. Inurement. Subject to the restrictions in Section 21 of the Basic Lease, the covenants and agreements herein contained shall bind and inure to the benefit of Lessors, their successors and assigns, and Lessee, its successors and assigns.

12. Captions. The headings of this Amendment are for convenience and reference only and in no way define, limit or describe the scope or intent of this Amendment nor in any way affect this Amendment.

13. Time. Time is of the essence in the Basic Lease and in this Amendment and in every term, covenant, condition and provision contained in both.


IN WITNESS WHEREOF, Lessors and Lessee have caused this Amendment to be executed and to be effective on the day and year first above written.

LESSORS:

ATTEST:

UNITED PARK CITY MINES COMPANY

  
Secretary

By   
President

ATTEST:

NORANDA MINING INC.

Cindy L. Paulton  
Secretary

By R. J. Fiorini  
Richard J. Fiorini,  
Vice President and General Manager

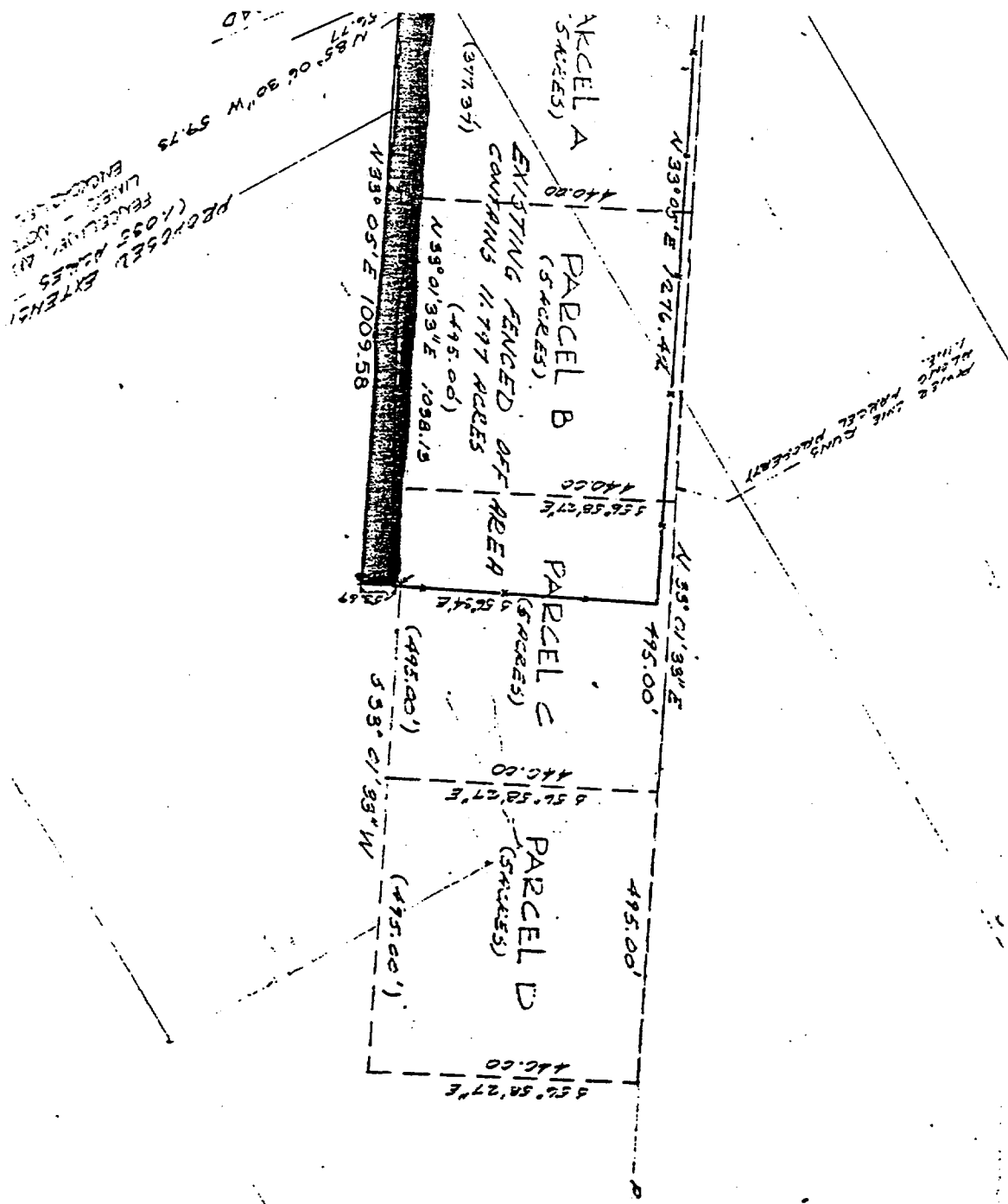
LESSEE:

ATTEST:

PARK CITY MUNICIPAL CORPORATION

M. Rolson  
City Recorder

By John E. Green  
John Green, Mayor



PROPOSED EXTENSION OF SANITARY LAND FILL

Beginning on the North right of way line of a County Road at a point S. 89°30'01"W. along the section line 2077.02 feet and South 3276.82 feet from the Northeast corner of Section 2, T. 2 S., R. 4 E., S. L. B. & M. and running thence N. 33°01'33" E. 1038.13 feet to a fence; thence S. 56°34' E. along said fence and the extension there of 53.69 feet; thence S. 33°05' 1009.58 feet to the North right of way line of said county road; thence N. 85°06'30" W. along said North line 59.73 feet to the point of beginning. Contains 1.250 acres.

NOTE: THIS DESCRIPTION COVERS THE PROPOSED EXTENSION FROM THE EXISTING FENCE LINE AND COUNTY ROAD RIGHT OF WAY LINE TO THE EXISTING FENCE LINE.

CORNER  
FENCE  
LINE

UTAH STATE DEPARTMENT OF HEALTH  
DIVISION OF ENVIRONMENTAL HEALTH

CODE OF  
SOLID WASTE DISPOSAL REGULATIONS

Adopted by  
Utah Solid and Hazardous Wastes Committee  
Under Authority of  
26-14, U.C.A., 1953, As Amended,  
June 20, 1981

## FOREWORD

These regulations are for the purpose of establishing minimum requirements for the disposal of solid wastes in Utah. The term "solid wastes" means garbage, trash and other wastes generated by daily living processes and also includes those produced in commercial, industrial and agricultural operations.

The growing volume of these wastes and the often haphazard methods of getting rid of them have resulted in rapid multiplication of the associated problems through the years, until it became obvious in Utah, as across the nation, that a positive management program would be essential.

Open dumping and intermittent burning of solid wastes, particularly those of municipal origin, has been the pattern in the past, leading to the increasingly undesirable effects of fly and rodent breeding, air pollution, water pollution, and aesthetic blight. This undesirable method of disposal has resulted partly from lack of specific controls and partly because of a relatively low cost.

While it is acknowledged that compliance with these regulations will result in added expense to local government and others involved, it is considered essential to proceed without delay in correcting the obvious problems which now exist in many areas of the State. An added benefit will be the opportunity of conserving the nations natural resources through recycling of useable materials.

The regulations are based on Statutory Authority and responsibility conferred by Section 26-14, UCA, 1953, as amended, and are enforceable throughout the State. They are designed for adoption and enforcement by local health departments in cooperation with the State Department of Health.

In adopting these regulations, the Solid and Hazardous Wastes Committee acknowledges a need for time to bring existing facilities up to standard and has instructed the staff to work cooperatively in development of reasonable construction schedules, with limits which assure elimination of existing hazards and environmental blights without undue delay, but which also recognize the difficulties faced by local governments in raising funds and developing regional solutions to problems.

## CODE OF SOLID WASTE DISPOSAL REGULATIONS

### DEFINITIONS

The following definitions shall apply in the interpretation and enforcement of this code.

Committee means the Utah Solid and Hazardous Wastes Committee.

Department means the Utah State Department of Health.

Hazardous Wastes means all waste materials considered to be excessively toxic or poisonous, corrosive, irritating or sensitizing, radioactive, biologically infectious, explosive or flammable, or other materials as determined by the Committee.

Person includes bodies politic and corporate, partnerships, associations and companies.

Shall is used to indicate mandatory requirements.

Solid Wastes includes hazardous wastes and means any discarded organic matter, garbage, refuse, trash, and other solid materials resulting from industrial, commercial, recreational and agricultural operations and from community activities, and shall include liquid or semi-liquid wastes accumulated in vehicle waste tanks or transported by tank truck or other similar means.

### INDISCRIMINATE DUMPING

1. It shall be unlawful for any person to deposit any solid waste in any place except at a site which has been designated by a city, county, district or other properly designated agency, and approved by the Utah State Department of Health. This requirement does not include the deposition of inert construction debris used as fill material or mine tailings and overburden, provided such deposition does not cause a public nuisance or hazard or contribute to air or water pollution.

### APPROVAL REQUIRED

2. No solid waste disposal site shall be constructed or operated without the approval of the Department.

### SUBMISSION OF PLANS

3. Design plans and related information shall be submitted to the Department for review and approval prior to the construction of any solid waste disposal site. Such plans shall include the following:

(a) A plat, map or aerial photograph upon which is accurately shown the exact location of the proposed disposal site, current land use, zoning within 1/4 mile of the site, any homes, industrial buildings, wells, watercourses, surface drainage channels, rock outcroppings, roads and general topography.

(b) A report including the following details:

- (1) Population and area to be served by the proposed site.
- (2) Total area of the proposed site.
- (3) Special provisions for handling special and/or hazardous wastes.
- (4) Anticipated type, quantity and source of solid waste to be deposited in the site.
- (5) Soil description to a depth of at least five feet below the proposed excavations, maximum groundwater elevations throughout the site and a general description of geology of the area. Such data shall be obtained by soil borings, trenching or other appropriate means.
- (6) Availability, source and characteristics of cover material.
- (7) Type and availability of equipment for efficient excavating, earth moving, spreading, compaction and other needs.
- (8) Provisions for fire control, which may include arrangements made with the nearest fire department to control any fires which may occur at the site.
- (9) Evidence of year-round accessibility to the site, to include an all-weather road.
- (10) Proposed fencing for control of access as well as prevention of scattering of waste material by wind.
- (11) Evidence of land ownership or lease agreement.
- (12) Any other information specifically requested by the Department.



#### PLAN APPROVAL

4. Upon approval of the plans and supporting information, persons concerned will be notified in writing by the Department. Approval will include appropriate limitations on types of waste to be accepted. Construction shall not be started prior to receipt of the written approval.
5. Plan approval will depend, in part, upon adequate isolation, avoidance of excessively irregular topography, groundwater elevations, extremely pervious soil formations, surface rock formations and outcroppings, and close proximity to natural drainage channels. At least five feet of separation between the bottom of disposal trenches and the highest groundwater elevation is desirable. Exceptions to this rule will be considered on individual merit but only where the site can be so modified as to demonstrably preclude any wetting of deposited waste by groundwater.

#### SITE OPERATION

6. Each disposal site shall be operated as follows:
  - (a) At least six inches of earth shall be placed after each operating day over all waste material after compaction to the smallest practical volume. A minimum of two feet of earth shall be placed over any completed segment of the site. Final grading shall provide effective surface drainage.
  - (b) The working face shall be limited to the smallest area practical to confine the amount of exposed waste without interfering with effective operation procedure.
  - (c) Adequate equipment for trenching, compacting and covering shall be available and in operating condition.
  - (d) Qualified personnel shall be at the site to supervise activities during all hours of scheduled operation.
  - (e) Open burning shall not be permitted.
  - (f) Adequate fire protection shall be provided. This may include arrangements made with the nearest fire department to control any fires which may occur at the site.
  - (g) Litter control along access roads and at the site shall be accomplished by clean-up of the areas as often as necessary to prevent unsightly conditions caused by blowing paper and other misplaced refuse.

- (h) Provisions for dust control at the site and along access roads shall be implemented as necessary.
- (i) The supervisor or other appropriate person shall keep records of the amounts of solid wastes accepted. This may be done by estimating area filled at the site, by measuring the volume of waste deposited, or by weighing material brought to the site. The amount and location of area completed shall be recorded and kept on file.
- (j) Appropriate rodent and insect control procedures shall be implemented as necessary.

#### HAZARDOUS AND SPECIAL WASTES

- 7. If hazardous or special wastes are accepted at the site, proper provisions shall be made for handling them. These provisions shall include, where necessary, a separate area for disposal of the wastes, designated by appropriate signs.
- 8. Hazardous wastes shall be covered immediately after dumping in the designated area, with minimum of six inches of cover material to avoid danger to persons permitted in the area.
- 9. Certain bulky wastes, such as automobile bodies, furniture and appliances should be crushed and then pushed onto the working face near the bottom of the cell or into a separate disposal area. Other bulky items, such as demolition and construction debris, tree trunks or stumps and large timbers, should be pushed onto the working face near the bottom of the cell or into a separate disposal area.
- 10. Dead animals received at the site should be deposited onto the working face at or near the bottom of the cell with other solid wastes, or into a separate disposal area provided they are covered immediately with six inches of earth to prevent odors and the propagation and harborage of rodents and insects.
- 11. Water treatment plant and digested wastewater treatment plant sludges containing no free moisture should be placed on the working face and covered with municipal solid wastes.

#### PHASING OUT OPEN DUMPS

- 12. Abandoned open dumps shall be closed in accordance with the following requirements:
  - (a) Absence of rats and other vermin shall be positively established. When rats or other vermin are present, an extermination procedure shall be established and

- (b) All fires shall be extinguished before final cover of earth is applied.
- (c) All solid waste shall be consolidated, compacted and covered with at least two feet of suitable cover material.
- (d) The final grading shall be accomplished to provide proper surface drainage and to avoid ponding.
- (e) If feasible, the area should be planted with grass or other vegetation.

#### OTHER PROCESSES, METHODS, AND EQUIPMENT

- 13. Processes, methods, and equipment other than those specifically addressed in this Code will be considered on an individual basis by the Department of Health upon submission of evidence of adequacy to meet environmental quality criteria.

#### EXCLUSIONS

- 14. Solid waste disposal facilities which are required to comply with State or Federal hazardous waste management regulations are exempt from provisions of these regulations.



309 KEARNS BUILDING  
SALT LAKE CITY, UTAH 84101

June 11, 1985

To: E. L. Osika, Jr.  
From: Kerry C. Gee  
Subject: Reclamation of the Park City Landfill

At this time, daily operations of the Park City Landfill are being conducted by the Park City Municipal Corporation. They are currently operating with several violations of the original and amended leases dated 1973 and 1981. The major violations consist of filling over the maximum height requirement of 3 feet above the surrounding terrain and expanding the limits of the dump beyond the described boundary of the leased property.

Unless the Landfill site is brought into compliance with the original and amended leases, United Park City Mines Company will suffer irreparable damage and should be compensated. If the condition of the Landfill were to comply with the original agreements, the City would get the title to the property. However, it appears that by complying with the agreements a great deal of excess fill and trash would be generated. This would have to be disposed of elsewhere at great cost to the City. It would also take a great deal of time. Recent discussions with City personnel have indicated that they do not want to operate a landfill any longer and would like to abandon it as soon as possible. It may be in the best interest of United Park to terminate the original and amended agreements with the City and force them to perform certain short and long term reclamation duties as described by us. As compensation, United Park would receive title to the property and not have the responsibility for any long term environmental liabilities that may result from the Landfill.

Whatever course of action United Park takes, there is a great deal of reclamation that needs to be done (see Plate 1-A). In order to bring the Landfill operation and site into compliance with the original and amended lease two things must be done (1) All of the material deposited on property adjacent to the Landfill should be removed. This includes material along the western and eastern boundaries of the Landfill, material deposited along the Landfill

MEMORANDUM

June 11, 1985

Page 2

access roads and the asphalt and concrete slabs located along the gravel pit access road west of the Landfill. In addition, a great deal of material has been disposed of at a variety of locations in and around the greater Richardson Flat area. This material was deposited only as a result of the Landfills existence and should be cleaned-up as part of the Landfill reclamation. (2) All of the material in the Landfill deposited at an elevation 3 feet above the surrounding terrain should be removed. The surface of the landfill should be graded to establish adequate drainage and then covered with two feet of topsoil as per the original agreement. The final elevation of the Landfill should not be over 3 feet above the surrounding terrain. All of the automobiles, trucks and buses would have to be removed from the area. Due to the existence of the Landfill, people have from time to time, disposed of material in any convenient location in the Richardson Flat area. An ordinance should be established and agreed upon by County and City governments that would strictly regulate and enforce indiscriminate dumping in the area after the closure of the Landfill.

Should United Park decide to terminate the agreements and take possession of the property, certain reclamation duties would have to be performed by the City as part of the agreement. The fill dirt deposited on the southeastern boundary of the extension would have to be removed and deposited within the boundaries of the landfill. The piles of asphalt and concrete slabs located along the gravel pit access road would have to be removed. A likely spot for this material exists on the property adjacent to the northwestern boundary of Parcel B. This material could be used to fill an old gravel pit that exists in this area. The cars, busses and other large debris would have to be removed from the property and disposed of elsewhere. Contouring of the surface of the Landfill would have to be done to establish drainage. A two foot thick layer of topsoil would have to be put on the surface of the Landfill and seeded to prevent erosion. Material that has been indiscriminately dumped and scattered around the Richardson Flat area as a result of the Landfill would have to be cleaned up. As with the complete Reclamation Agreement, a City-County policy regarding indiscriminate dumping in the Richardson Flat area would have to be established and enforced once the Landfill is closed.

MEMORANDUM

June 11, 1985

Page 3

Current disposal operations are underway in Parcels C and D (see Plate 1-A). The groundwater table in this area is higher than the City's plan originally stated. In an effort to avoid contamination of our groundwater monitoring wells, located North of the Landfill, the City is not digging trenches and burying material beneath the surface of the ground. The City's current practice is to dispose of the material on the surface of the ground by stacking and compacting the debris to a thickness of 3 to 4 feet; then, burying it with 1 to 2 feet of earth. When a large area has been completed in this manner, a new layer or lift will be developed. The City's plan is to raise the portions of Parcel C and D to a height equal to Parcels A and B. This procedure allows the City to keep refuse out of the groundwater but greatly limits the amount of material that can be deposited at the Landfill. It also forces the City into noncompliance with Section 5 of the original lease.

The City has an arrangement with Summit County to accept household refuse from Park City at the County dump in Henefer, Utah. The City is only accepting construction debris and fill dirt at the Park City Landfill. At the rate at which material (particularly fill dirt) is currently flowing into the Landfill, the raising of Parcels C and D will be complete by the end of July. In view of this, I would expect that reclamation work could be completed before winter.

During any reclamation work, it will be imperative that a representative from United Park City Mines Company visit the Landfill on a regular basis to monitor the work performance. This will also ensure against any further degradation of the surrounding United Park property by the removal of valuable materials, such as topsoil, without due compensation, for the sole purpose of reclaiming the dump.

cc: R. V. Clawson

DOC ID # 7316  
PAGE # \_\_\_\_\_

**Contact the Superfund Records Center to view this document.**

SITE NAME Richardson Flats

OPERABLE UNIT \_\_\_\_\_

REPORT OR DOCUMENT TITLE US EPA's Request For Information

DATE OF DOCUMENT November 23, 1987

DESCRIPTION OF IMAGERY Plate 1A Reclamation Map -

Oversized

NUMBER AND TYPE OF IMAGERY ITEM(S) 1



309 KEARNS BUILDING  
SALT LAKE CITY, UTAH 84101

July 10, 1985

MEMORANDUM

To: E. L. Osika, Jr.

From: Kerry C. Gee

Subject: Prospector Square Mill Tailings Disposal in  
the Park City Landfill.

Attached is a memo to you written on July 3 describing my observations during the period from June 28 to June 30, 1985. During this period of time, I observed and sampled tailings-like material being disposed of in the Park City Landfill. Also, attached are the results of the samples taken and analysed for Pb., Zn., Cu. and Cd.

In summary, the values for Pb. were between 3,000 and 7,800 ppm, Zn. values were between 5,500 and 14,400 ppm, Cu. values were between 260 and 760 ppm and Cd. values were between 32 and 72 ppm.

The samples average 5620 ppm Pb., 10,320 ppm Zn, 451 ppm Cu. and 54 ppm Cd. The material that I observed being loaded, hauled and dumped went 4,400 ppm Pb., 9,000 ppm Zn., 300 ppm Cu. and 40 ppm Cd.

cc: Reed V. Clawson

004017





309 KEARNS BUILDING  
SALT LAKE CITY, UTAH 84101

July 3, 1985

To: E. L. Osika, Jr.

From: Kerry C. Gee

Subject: Disposal of Material from the Prospector Square  
Area in the Park City Landfill.

SUMMARY

On Friday, June 28 and Sunday, June 30, 1985, I observed material from Prospector Square being loaded into trucks, hauled to and dumped in the Park City Landfill. The material consisted of a mixture of grey sand-like material, soil, rocks, concrete slabs and other debris. The grey sand-like material comprised between 40 and 60 percent of the material hauled and sampled and appeared to me to be old mill tailings. Samples were taken from several piles of material that I did not observe being dumped. Samples were also taken of material that I observed being loaded into trucks at Prospector Square, hauled to the Landfill and dumped. Photographs were taken of the loading and dumping. This was also observed by a Summit County Deputy Sheriff and others.

After first observing material that appeared to me to contain old tailings was being disposed of in the Park City Landfill, I informed you and then the Director of Public Works for Park City, Mr. Jerry Gibbs.

The samples have been taken to Assay Lab, Inc. in Midvale where they will be dried and crushed. They will then go to the ASARCO Labs in Salt Lake for analysis on Cu., Pb., Zn. and Cd. content.

The following paragraphs describe in detail the events that are related to the hauling of material from Prospector Square and dumping it in the Landfill.

Thursday, June 27, 1985

I was first informed that "tailings" were being hauled from Prospector Square to the Landfill on Thursday evening.

004018

MEMORANDUM

July 3, 1985

Page 2

Mr. Ray Wortley, who had observed this earlier in the day, took me to Prospector Square and showed me specific sites from which material had been removed. I visited the Landfill and observed several piles of fill that contained material resembling old mill tailings.

Friday, June 28, 1985

I went to the Landfill at 8:15 A.M. and sampled material from 10 piles that Mr. Wortley claimed to have originated in Prospector Square (sample nos. LF-11 and LF-12). While I was there, a dump truck with Park City Municipal Corporations emblem on the doors arrived with a load of Material that the driver claimed was from Prospector Square. This was witnessed by Bob Thomasen, Ray Wortley and Don Petty, a City employee.

I drove from the Landfill to Prospector Square and observed a white dump truck being loaded with material from a lot on Sunrise Circle. The material contained grey sand-like material that resembled tailings. I followed the truck to the Landfill. I then went to the office of Public Works in Park City and telephoned you to report my observations. I then informed the Director of Public Works, Mr. Jerry Gibbs. Mr Gibbs told me that the material was not tailings, just dirt but that he would look into it and get back to me.

I recieved a message on Monday, July 1, that was taken in our office the previous Friday, from Mr. Gibbs stating that the material was not tailings but concrete slabs and dirt and that I was wrong in my observations.

Saturday, June 29, 1985

Mr. Ray Wortley found me at my residence at approximately 9:45 A.M. and informed me that the contractors in Prospector Square had hauled tailings to the Landfill all day on Friday. I passed this information on to you in a telephone conversation. You instructed me to take samples when I could over the weekend.

4:10 P.M. Saturday, June 29, 1985

Mr. Wortley found me in Park City and informed me that contractors had hauled material with tailings in it from Prospector Square to the Landfill all day on Saturday. We went to Prospector square and Mr. Wortley showed me specific sites from which material had been removed. I would sample these areas on Sunday.

MEMORANDUM

July 3, 1985

Page 3

Sunday, June 30, 1985, 11:20 A.M.

I proceeded to a vacant lot at the corner of Butch Cassidy Court and Wyatt Earp Way. Material consisting of a mixture of soil and a grey sand-like material was pushed into piles and had the appearance that it was ready to be hauled away. I took three samples of the Material from this lot (sample numbers BC-WE 1, 2, and 3).

11:45 A.M.

I went to Sunrise Circle to sample residual material that remained after hauling observed on Friday, June 28, 1985. I took two samples of this material (samples SR-1 and SR-2). While traveling from the lot on Butch Cassidy Court to Sunrise Circle, I passed a lot on the corner of Ina Way and Comstock Drive. This lot had two backhoes with operators on it. The backhoes had Parry Construction emblems on them. It appeared to me that the operators were waiting for a truck. After sampling the lot on Sunrise Circle, I observed a large blue dumptruck with "Bill Dudley Trucking" on each door back onto the lot and park next to the backhoes. The truck driver and the backhoe operators got into smaller trucks and drove away. The time was approximately 12:10 P.M.

I drove to the City Landfill. The gates were unlocked and opened wide. I went into the dump and drove to the northernmost end of the dump and observed several piles of material that had a grey colored sand-like material mixed with the soil and other debris. I would sample these later.

At this point in time, I felt certain that more material was going to be hauled to the dump from Prospector Square area. I felt that an impartial observer would help substantiate any claims to that effect. I traveled to Mt. Air Cafe and telephoned Joseph L. Offret, a Deputy Sheriff in Summit County. Mr. Offret was off duty but agreed to come and observe for me. He recommended that I get a camera and take some pictures. I arrived back to Ina Ave. at approximately 12:45 P.M.

12:45 - 1:05 P.M.

I sampled the material pile up on the lot. Sample Numbers Ina 1 and 2. Mr. Ray Dudley and the others returned to the lot along with a white dump truck with a "Parry Construction" emblem on the door. At approximately 1:10 P.M., Mr. Dudley moved the truck with his name on it to a

MEMORANDUM

July 3, 1985

Page 4

lot just north of the house located at 2223 Doc Holiday Drive. He was accompanied by one of the backhoes. The backhoe began loading material into Mr. Dudley's truck. At approximately 1:15 P.M., Mr. Offret arrived and was accompanied by his father, Lloyd Offeret. Also, another piece of equipment a "Bobcat" arrived and with the other backhoe began smoothing and contouring the Ina Ave. Lot.

1:50 P.M.

Mr. Dudley's truck was full of material and drove off the lot headed towards the main highway. Joe and Lloyd Offret and I followed him. The dumptruck turned east of the main highway towards the Landfill where he had to unlock the gates to gain access. He then proceeded to the northern end of the Landfill, dumped his material with the other piles observed earlier and drove off. The time was 2:00 P.M.

I sampled the material dumped by Mr. Dudley (sample number Dumped 1) and the other piles observed earlier (samples LF1 through LF10).

At approximately 2:50 P.M., Mr. Dudley returned with his truck loaded and dumped it. In addition, the white dump truck observed on Ina Ave. arrived with a load and dumped its material. I sampled both loads of material (samples Dumped 2 and Dumped 3).

The Offrets and I left the Landfill site at approximately 3:30 P.M. While leaving we notice both dump trucks returning to the Landfill site loaded with tree limbs and other debris. It appeared that these last two observed loads had little or no grey sand-like material in them.

AMERICAN  
ENVIRONMENTAL  
CONSULTANTS

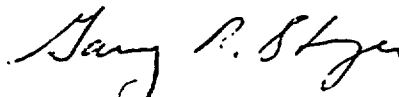
July 8, 1985

Mr. Joe McPhie  
United Park City Mines  
P. O. Box 1450  
Park City, Utah 84060

Dear Sir:

Please find attached the results for the soil samples submitted for lead, zinc, copper and cadmium analyses. All results are listed as total on a dry weight basis. Also, for comparative purposes, I have included some information on lead and cadmium levels in various types of soils.

Very truly yours,



Gary R. Stanga  
Chief Environmental Chemist

GRS/mcs  
Attach.

004019

American Environmental Consultants  
Division of ASARCO Incorporated  
Salt Lake City, Utah

COMPANY United Park City Mines  
Soil & Vegetation Sample Results

DATE RECEIVED 7/ 2/85  
DATE REPORTED 7/ 8/85

LAB #	SAMPLE DESCRIPTION	1985	Cd ppm	Cu ppm	Pb ppm	Zn ppm
		SAMPLE DATE				
931	Soil LF 1	7/ 2	40.	320.	3700.	7800.
932	Soil LF 2	7/ 2	60.	500.	7000.	11500.
933	Soil LF 3	7/ 2	72.	520.	7100.	13200.
934	Soil LF 4	7/ 2	54.	440.	5800.	10400.
935	Soil LF 5	7/ 2	46.	380.	5650.	9200.
936	Soil LF 6	7/ 2	70.	760.	7800.	14400.
937	Soil LF 7	7/ 2	40.	340.	4400.	7200.
938	Soil LF 8	7/ 2	42.	460.	5140.	8000.
939	Soil LF 9	7/ 2	60.	520.	5660.	11320.
940	Soil LF10	7/ 2	32.	260.	3000.	5500.
941	Soil LF11	7/ 2	68.	560.	6900.	12200.
942	Soil LF12	7/ 2	54.	500.	5860.	11200.
943	Soil BC WE 1	7/ 2	42.	380.	4640.	9000.
944	Soil BC WE 2	7/ 2	66.	580.	7540.	12600.
945	Soil BC WE 3	7/ 2	50.	420.	5600.	10200.
946	Soil INA 1	7/ 2	64.	380.	4940.	12600.
947	Soil INA 2	7/ 2	54.	460.	5220.	11200.
948	Soil Dumped 1	7/ 2	40.	300.	4400.	9000.
949	Soil Dumped 2	7/ 2	54.	440.	5200.	10800.
950	Soil Dumped 3	7/ 2	62.	560.	6200.	12000.
951	Soil SR 1	7/ 2	56.	420.	5440.	10600.
952	Soil SR 2	7/ 2	58.	420.	6450.	11400.

COMPARISON OF METAL CONCENTRATIONS IN SOIL

Pb (1)	1. Natural Range	2 - 200 ppm
	2. Street Dust, Residential and Commercial Sites	1636 - 2413 ppm
	3. City Parks	194 - 3357 ppm
Cd (2)	1. Normal Soils	0.1 - 1.4 ppm
	2. 1 km from lead smelter	26. - 160. ppm

- (1) Lead Airborne Lead in Perspective (NAS), pp. 28-30, 1972
- (2) U.S. Department of Commerce - Health Assessment Document for Cadmium, pp. 4-16

EPA REGION VIII  
SUPERFUND DOCUMENT MANAGEMENT SYSTEM

DOC ID # \_\_\_\_\_  
PAGE # \_\_\_\_\_

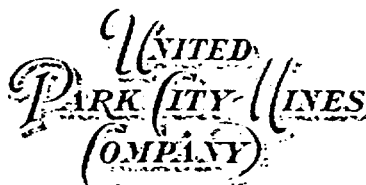
IMAGERY COVER SHEET  
UNSCANNABLE ITEM

Contact the Superfund Records Center to view this document.

SITE NAME	<u>Richardson Flats</u>
OPERABLE UNIT	_____

REPORT OR DOCUMENT TITLE	<u>Response of United Park City...</u>
DATE OF DOCUMENT	<u>January 15, 1988</u>
DESCRIPTION OF IMAGERY	<u>Exhibit 15N - oversized</u> <u>topographic map</u>
NUMBER AND TYPE OF IMAGERY ITEM(S)	<u>1</u>





309 KEARNS BUILDING  
SALT LAKE CITY, UTAH 84101

October 9, 1985

MEMORANDUM

To: E. L. Osika, Jr.  
From: Kerry C. Gee

Subject: Surface and Groundwater Monitoring Program  
Around the Park City Landfill.

As part of the reclamation of the Park City Landfill, Park City Municipal Corporation should be required to drill four downgradient wells and one upgradient well around the Landfill site. These wells should be sampled monthly and analyzed for the parameters listed below.

1. pH
2. Chloride
3. Iron
4. Manganese
5. Phenols
6. Sodium
7. Sulfate
8. Lead
9. Zinc
10. Mercury
11. Arsenic
12. Copper
13. Cadmium
14. Specific Conductance
15. Total Organic Carbon
16. Total Organic Halogen

The establishment of an upward trend of the amount of any parameter listed above, particularly in the downgradient wells, would be a good indication that a problem exists. It would then be necessary to do further analysis to determine the exact contaminants involved and the possible affects.

It would not be possible to establish the true background at each well location because there may already be some migration of contaminants from the Landfill into the

E. L. Osika, Jr.

Page 2

October 9, 1985

ground and surface water system. Therefore, the upgradient well will have to be used to establish background for the area. In addition to the groundwater sampling wells, surface water samples should be taken both up and downstream from the Landfill.

It is very important to United Park that these wells are drilled and the monitoring program established. We are currently monitoring ground and surface waters around the impoundment dam at the tailings pond. It appears that Silver Creek, located west of the Landfill, contains tailings that have their origin in Prospector Square and a slurry line break that occurred while Noranda was operating the Ontario Mill. Should surface or ground waters penetrate the Landfill cells, it is probable that certain organic compounds formed as the refuse decomposes could enter the groundwater system. Should these compounds find their way to the tailings, they may be very capable of leaching and mobilizing the metals. This would result in the contamination of the surface and groundwater that we are currently monitoring with regards to our tailings pond. Should this happen, United Park would have to prove that the contamination was not coming from our tailings pond. The wells would aid in that proof.

The location of the wells is very important. I recommend that four downgradient wells be drilled. One of these wells should be between the Landfill and the general area of our underground monitoring wells. The other three wells should be located in such a manner that if some contamination was discovered, its rate of movement could be determined. That is, they should not all be equidistant from the northwestern edge of the Landfill. I also recommend that when the City is ready to establish the wells and monitoring program that an independant and qualified hydrogeologist experienced in these matters be contracted to design the monitoring program with respect to well locations, depths, size and the types of materials to be used in the wells. When dealing with organic compounds, the types of materials placed in the wells are very critical. Wells designed to monitor organic compounds have been contaminated and rendered useless because of the types of glues or compositions of the well casings used. This independant consultant will work closely with City and United Park personnel. American Environmental Consultants (ASARCO) recommends that we contact Hydro Search Inc. in Denver, Colorado.

cc: Reed V. Clawson  
Rosemary J. Beless

UNITED  
PARK CITY MINES  
COMPANY

309 KEARNS BUILDING  
SALT LAKE CITY, UTAH 84101

December 22, 1985

Mr. Jerry W. Gibbs  
Director of Public Works  
Park City Municipal Corporation  
P.O. Box 1480  
Park City, Utah 84060

Re: Closure of Park City Landfill

Dear Mr. Gibbs:

This will serve to acknowledge our receipt of the October 23, 1985 letter regarding a proposal for closure of the Park City Municipal Landfill in Richardson Flat.

As you have recognized, Park City Municipal Corporation (the "City") is required to do certain things at the site as a precondition to the releasing of the landfill property back to United Park City Mines Company ("UPCM") under the terms of the Lease dated October 12, 1973 by and between UPCM, as Landlord, and the City, as Tenant. We are concerned that the City's proposal does not address issues raised by UPCM representatives in previous discussions with the City and does not adequately respond to the specific requirements of the Lease. This is particularly disturbing in light of the Environmental Protection Agency's current scrutiny of the Park City area and the City's position with the E.P.A.

As we have previously informed you, the City is in violation of a number of provisions of the Lease and the First Amendment to the Lease, dated August 1, 1981. These violations include, but are not limited to: (1) disposing of substances at the landfill other than City garbage and waste without written consent of UPC (Lease, Paragraph 1); (2) failure to perform final cleanup of the prior parcel of land (Parcels A-C) before utilizing the subsequent parcel [(Parcels B-D) (Lease, Paragraph 2(a)-(f); First Amendment, Paragraph 3)]; (3) failure to maintain the landfill as a safe, sanitary, inoffensive site (Lease, Paragraph 3); (4) failure to operate the landfill in compliance with federal and state statutes, regulations and rules (Lease, Paragraph 4); (5) filling the landfill above the Lease limitation of three feet above the natural terrain to heights exceeding fifteen feet above the natural terrain (Lease Paragraph 5; First

Mr. Jerry Gibbs  
December 22, 1985  
Page Two

Amendment, Paragraph 3); (6) failure to bury or remove all loose material, to compact the entire surface to not less than 90% maximum density and to cover the entire surface with a layer of top soil not less than two feet thick (Lease, Paragraph 6; First Amendment, Paragraph 3); (7) failure to enclose the landfill area in possession of the City with a six-foot chain link fence (Lease, Paragraph 7); (8) using the extension landfill area for a new fill rather than to level the present fill in the leased area (First Amendment, Paragraph 3); (9) failure to complete all levelling and cleanup of the extension area within 90 days after August 1, 1981 [(First Amendment, Paragraph 4(a)); and (10) failure to police and maintain a 400-foot perimeter around the leased area and to promptly collect and properly dispose of any refuse within the area [(First Amendment, Paragraph 4(c))]. In addition, the City has allowed waste material to be dumped beyond the boundaries of the leased areas onto various properties not leased to the City.

UPCM is also informed that there is a possibility that the City has dumped, and/or has allowed others to dump, hazardous substances, as defined under 42 U.S.C. § 9601(14) [Comprehensive Environmental Response, Compensation and Liability Act of 1980, § 101(14)] in the landfill and that the City may be in violation of 42 U.S.C. § 9603(b) for failure to give notice of this dumping. UPCM has affidavits of parties who claim to have witnessed such dumping.

These actions of the City are in violation of the Lease and have damaged the landfill property and surrounding properties owned by UPCM.

In order to effectively close the landfill and enter into an appropriate Closure Agreement, it is necessary that corrective action be taken by the City to put the property back in the condition it would have been (to the extent possible) had the Lease terms been fully complied with. Furthermore, it is necessary that full and complete assurances are given to the satisfaction of UPCM that all federal, state and local health, safety, environmental and other applicable regulations and requirements have been met and complied with, that appropriate monitoring and corrective action has been taken and implemented by the City, and that adequate indemnification arrangements have been made to protect UPCM against future potential liability. The terms of a Closure Agreement would generally include the following:

1. The City is to remove approximately 12 - 15 feet of waste so that the fill does not exceed the three-foot limitation required in the Lease. Cars, busses, and other large debris are to be removed from the property and disposed of elsewhere. The entire

Mr. Jerry W. Gibbs  
December 22, 1985  
Page Three.

landfill surface must then be compacted to not less than 90% of the maximum density. The landfill area must also be capped and contoured, with appropriate drainage, top soil of not less than two feet thick and planting to prevent erosion.

2. Because the City has violated various provisions of the Lease and exposed UPCM to potential liability, UPCM will not be required to quitclaim Parcel A to the City [Lease Paragraph 2(e)].

3. The landfill area must be enclosed with a six-foot chain link fence with locked gates (Lease, Paragraph 7).

4. Waste materials dumped beyond the boundaries of the leased areas on adjoining properties must be removed. Specifically, the fill dirt deposited on the southeastern boundary of the extension lease, the piles of asphalt and concrete slabs located along the gravel pit access road and material indiscriminately dumped around the Richardson Flat area as the result of the landfill must be removed.

5. City-county policies and ordinances banning dumping in the Richardson Flat area must be enacted and enforced.

6. The City shall submit to UPCM a complete inventory of the wastes deposited at the landfill, as required by Paragraph 6(i) of the Utah Solid Waste Disposal Regulations (June 20, 1981). This inventory must detail the types of wastes deposited in each cell or trench within the landfill and the locations, depths, and dimensions of landfill cells, trenches or other disposal areas with reference to permanently surveyed benchmarks.

7. Under the supervision of an independent, qualified environmental hydrogeologist, to be agreed upon by the City and UPCM, the City will construct monitoring wells above and below the landfill site for the purpose of sampling and analyzing the chemical composition of the groundwater and to monitor future compliance with groundwater protection standards. A monitoring program for the City to follow will be established jointly by the environmental hydrologist, UPCM technical personnel, and the City.

8. The City will indemnify, defend and hold UPCM harmless from any and all claims, demands or causes of action, of whatever nature, by any federal, state or local government agency or private party, arising from damages or injury caused by or related to the landfill or for reclamation, corrective and cleanup costs resulting from or related to the landfill. The City shall also pay all costs incurred by UPCM, including but not limited to, expert consultants' fees, testing costs, court costs and attorneys' fees, associated with any investigation or action concerning the landfill.

Mr. Jerry W. Gibbs  
December 22, 1985  
Page Four.

9. The City shall provide post-closure financial assurances in favor of UPCM in the form of a bond, trust fund or post-closure insurance, for post-closure monitoring and maintenance of the landfill site and for the costs of any future investigations, corrective actions or reclamation for the landfill material which may be required by the federal, state or local government, or a private party. The coverage of a post-closure insurance policy shall be in an amount of not less than \$6 million per occurrence with an annual aggregate of \$10 million, exclusive of legal defense costs. The minimum amount of coverage shall be adjusted annually upward or downward to reflect the change in the Consumer Price Index from the date the Closure Agreement is executed. The City will submit proof of post-closure financial assurance and the amount thereof to UPCM on an annual basis.

10. Upon completion of the closure of the landfill site and adjoining areas, the City will be required to submit to UPCM certifications by both the City and an independent registered professional engineer that the facility has been closed in accordance with the specifications of the Closure Agreement. The City will also be required to obtain written approval from the Utah State Department of Health that the landfill has been closed in accordance with state standards and regulations.

11. The City will provide UPCM with a copy of the certificate of insurance which insures the contractor hired by the City to close the landfill and which protects both the City and UPCM from liability from claims for injuries or damages arising from the contractor's activities related in any way to the closure of the landfill.

12. In the event any action is required to enforce the terms or conditions of the Closure Agreement, the prevailing party in such action shall be entitled to recover from the other party all costs, expenses and attorneys' fees related to such action.

We look forward to meeting with you to discuss a Closure Agreement along the lines outlined above. It is of course, important that we cooperate fully with each other so as to accomplish the proper and safe closure of the landfill and to minimize any potential exposure which could possibly result in conjunction with the landfill or its closure. Please contact me to arrange a meeting at your earliest convenience.

Very truly yours,

UNITED PARK CITY MINES COMPANY

By \_\_\_\_\_  
DAVID W. BERNOLFO  
Its President

DWB/dsl

QUESTION 16

Please provide any information on whether United Park City Mines or its consultants are planning to perform any investigations of the soil, water (ground or surface), geology, hydrogeology or air quality on or about the site. Please include the following:

- a. What the nature and scope of these investigations will be.
- b. The contractors or other persons that will undertake these investigations.
- c. The purpose of the investigations.
- d. The dates when such investigations will take place and be completed.
- e. Where on the site such investigations will take place.

RESPONSE

United Park City Mines Company, using Company personnel, is currently sampling five monitoring wells, Silver Creek and the tailings pond diversion ditch pursuant to its current NPDES Permit. In addition, continuous field observations have been taken noting areal disturbance of mill tailings, wind direction and trespasses in and about the site. These observations led to United Park City Mines Company's plan (which was commenced in 1983) to cover and revegetate areas of the tailings pond that are the source of blowing dust. Additionally, preliminary field reconnaissance commenced in March of 1987 on an investigation into the surface water distribution and drainage on all of the Richardson Flat area as well as the Site. This reconnaissance was completed in the summer of 1987 but, due to the unusually low amount of spring runoff encountered, the investigation has been extended to include the runoff period commencing in the spring of 1988. There has not been a report generated in connection with this investigation at this time.

The last investigation noted above was prompted by investigations by the Utah State Department of Health and the EPA concerning the possible listing of Richardson Flat on the National Priorities List for cleanup under Superfund.

United Park City Mines Company's investigations of and activities on Richardson Flat are currently being performed by Company personnel. Other than legal counsel, United Park

Continued on next page

Response of United Park City Mines Company, 01/15/88  
Question 16 continued

City Mines Company has not hired or retained any outside consultants to study, investigate or make any reports relative to the "Site."

In connection with the realignment of U.S. Highway 40, the Utah Department of Transportation is planning to investigate the Park City Landfill on Richardson Flat with a drilling program as outlined in the attached Exhibit 16-A.

United Park City Mines Company reserves the right to supplement this response as additional information and documents become available.



UTAH DEPARTMENT OF TRANSPORTATION  
GUIDELINES FOR PREPARING PROPOSALS

INTRODUCTION

These guidelines were developed to standardize the preparation of proposals by Consultants providing services to the Department. The purpose for these guidelines is to help assure consistency in format and content of proposals that are prepared by Consultants and submitted to the Department. This process will reduce the time requirements for the Consultants in preparing a proposal and will simplify the review process by Department personnel.

The proposal should contain the following information in the order listed:

1. Introductory Letter
2. Personnel and Experience
3. Understanding of the Work
4. Approach to Performing the Work
5. Equipment
6. Schedule Control
7. Office Location
8. Supportive Information

It is very important that submittals be clear and concise and that they are capable of evaluation through an objective manner by the Department.

RECOMMENDED DETAILS AND EVALUATION CRITERIA

1. Introductory Letter - The introductory letter should be addressed to:

Dale E. Peterson, P.E.  
Standards and Special Studies Engineer  
Utah Department of Transportation  
4501 South 2700 West  
Salt Lake City, UT 84119

This letter should contain an expression of the Consultants interest in the work, a statement regarding the qualifications of the Consultant to do the work, and any summary information on the Consultant that may be useful or informative to the Department. This letter should be no longer than two pages.

2. Personnel - Identify the key individuals who are proposed to be part of the crew along with their qualifications and experience as related to the work. Experience on similar or related work should be included. Describe the crews capability for actually undertaking and performing the work. Types and locations of similar work performed in the last three years that best characterize the quality and cost control of the Consultant should be included. Names and phone numbers of individuals that

can be contacted are desired. The evaluation will consider how well the qualifications and experience of the personnel relate to the work. A three page maximum length is suggested.

3. Understanding of the Work - The Consultants basic understanding of the work. This section should be based on existing information available in the Request for Proposal, from discussions with the Department's Geotechnical Engineer, and from applicable regulations or requirements. A one page maximum length is suggested.
4. Approach to Performing the Work - Describe the course of action proposed to meet the goals and objectives of the work. The approach should be realistic, it should be clear and concise, and it should identify potential impacts, impediments, or conflicts. The estimated costs for performing the work should be included in this section. A two page maximum length is suggested.
5. Equipment - Identify the equipment proposed for use. Include types, models, and brief descriptions. A one page maximum length is suggested.
6. Schedule Control - Identify the internal methods that will be used for schedule control. Current references should be listed that confirm the Consultant's ability for the timely completion of work. A one-half page maximum length is suggested.
7. Office Location - Identify the location where the Consultant's base of operation is located. The suggested maximum length for this section is one-half page.
8. Supportive Information - Supportive information may include graphs, charts, photos, resumes, references, etc. and is totally discretionary to the Consultant. The maximum suggested length is five pages for this section.

#### SUMMARY

The proposal should be clear and concise and it should provide the Department's evaluators with an understanding of the Consultant's ability to undertake and complete the proposed work in a thorough and timely manner. The entire proposal including all sections listed above should not exceed 15 pages. The distribution or length of each section may vary from that suggested but it should not exceed the 15 page maximum.

REQUEST FOR PROPOSALS

for  
Drilling and Soil Analysis  
Services

NF-19(13)  
Relocation of US-Highway 40  
Park City Junction to South Mayflower

MATERIALS AND RESEARCH SECTION  
UTAH DEPARTMENT OF TRANSPORTATION

October 2, 1987

## REQUEST FOR PROPOSAL

Relocation of US-Highway 40  
Park City to South Mayflower  
NF-19(13)

### PARK CITY SANITARY LANDFILL EVALUATION

#### I INTRODUCTION

The Utah Department of Transportation (UDOT) is currently seeking the services of a qualified drilling contractor/consultant to conduct a drilling and sampling program at the Park City sanitary landfill located in Section 2, Township 2 South, Range 4 East, SLB&M, Utah.

United Park City Mines has expressed concern that hazardous materials may be encountered within the landfill. Rosemary J. Beles, Attorney for United Park City Mines Company, on page 5 of a letter dated September 8, 1986 to Mr. Clifford I. Barrett, Regional Director, Bureau of Reclamation states: "Because Park City residents used the Park City Landfill for many years as a general "dump" for everything and Park City has refused to provide United Park with records of the materials buried at the Landfill, we do not know the contents of the Landfill. At the least, it is solid waste, with possibilities of more toxic or hazardous wastes,...".

Again, in a similar letter dated April 14, 1987, Ms. Beles states"...because the risks associated with the wastes (known sewage sludge and solid wastes; possibly toxic or hazardous wastes) in the Landfill...".

## II SCOPE

Phase I - The work will consist of drilling ten exploratory holes by auger, rotary drill etc., approximately 40 feet deep with a minimum diameter of 2-15/16 inches through the sanitary landfill and five feet into the original natural ground to determine the depth of waste material in place and to recover samples to determine the type of waste in place or priority pollutants encountered. The locations are shown on the attached plan sheet and will be staked by UDOT personnel. The contractor/consultant will be required to supply UDOT with a written report which shall include a map showing the drill hole location and number, documentation indicating the depth to original natural ground and a log of the waste material encountered in each drill hole. This final report shall be submitted to the UDOT contact.

The contractor will be responsible to plug each hole with bentonite or other material approved by United Park City Mines. The type of material to be used will be stated in the proposal. In addition, the contractor shall be responsible to inform both UDOT and United Park City Mines one week prior to commencing his drilling.

Personnel Safety - Because of the concerns regarding hazardous waste the contractor will be required to drill using water as a circulation medium. The contractor shall not use any drilling technique that causes dust clouds or allows dust particulates to become airborne. The contractor shall be responsible to ensure that his employees are trained in personal hygiene. All personnel shall be required to wear gloves when handling drill equipment that encounters the soil in the landfill and when handling samples removed from the landfill.

Hazardous Waste Identification Personnel - The contractor shall have a "competent person" on site to identify non-municipal refuse if encountered. This individual shall have the training and authorization to take prompt corrective measures to ensure that the drill personnel are not exposed to potential hazards.

The above described personnel protective program has been discussed with, and reviewed by representatives of both the Utah Occupational Safety and Health office and the Federal Occupational, Safety and Health Administration.

Priority Pollutant Sampling - Core samples shall be retrieved if mine tailings or other non-municipal waste is encountered to determine if priority pollutants are present. Priority pollutants that may be encountered include, but are not limited to, lead, cyanide and arsenic.

Phase II - This work shall consist of analyzing soil samples for priority pollutants if encountered in the drilling/sampling operation. The contractor/consultant shall be required to conduct the necessary tests to determine the priority pollutants encountered and define the concentrations of these pollutants.

### III - PROPOSAL CONTENTS

The proposal shall address the contractor/consultants concept of the project specifically addressing the hazardous waste problem, and his program for assuring protection of his employees. The proposal shall include a cost estimate for the required tests to determine the specific priority pollutants and determine the concentration of the pollutant.

The proposal shall conform with the Utah Department of Transportation's Guidelines for Preparing Proposals. A copy of these guidelines is attached. Proposals shall be evaluated by a Department Rating Panel and the selection made based on professional qualifications and experience, equipment, and costs.

#### IV CONTRACT TIME

Six copies of the proposal shall be received by Utah DOT contact, as noted below, by 4:30 PM on January 29, 1988. The final report for Phase I shall be submitted to UDOT four weeks after the notice to proceed has been received by the contractor/consultant. The date for submittal of the test results for Phase II, if applicable, will be negotiated upon completion of drilling. The contractor/consultant shall have sufficient time to complete the tests and a minimum of one week to schedule and begin testing.

#### V UTAH DEPARTMENT OF TRANSPORTATION CONTACT

Edward Keane, Geotechnical Engineer  
4501 South 2700 West  
Salt Lake City, Utah 84109  
(801) 965-4320

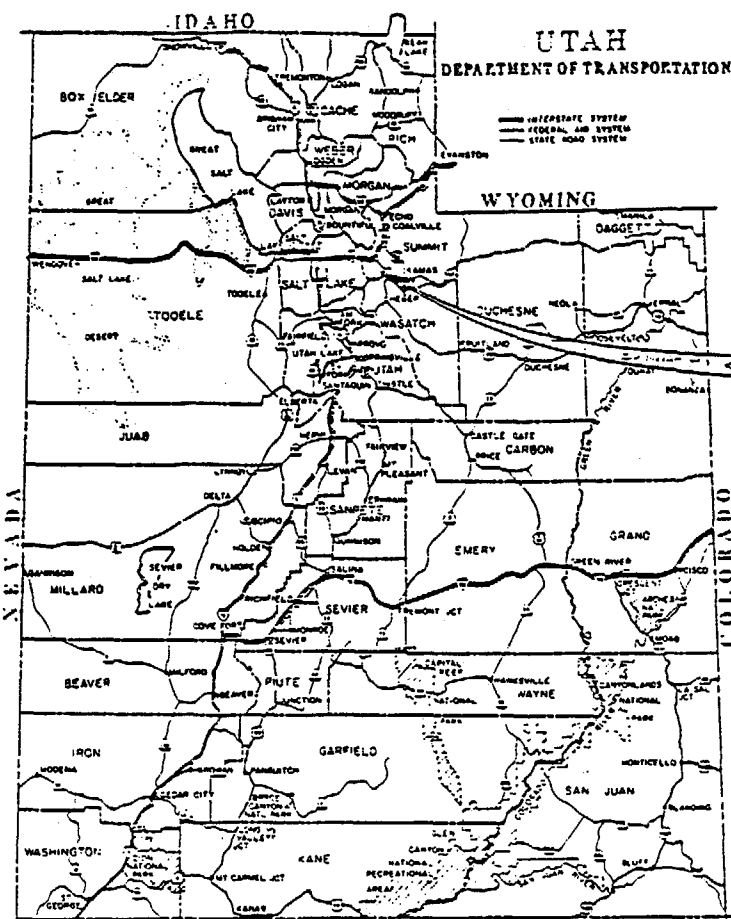
#### VI UNITED PARK CITY MINES CO. CONTACT

E.L. Osika, Jr., Vice President  
United Park City Mines Co.  
309 Kearns Bldg.  
Salt Lake City, Utah 84101  
(801) 532-4031

## VII DISPOSITION OF PROPOSALS

Proposals become the property of the Utah Department of Transportation, are treated as privileged documents, and are disposed of according to Department policies, including the right to reject all proposals.





# UTAH DEPARTMENT OF TRANSPORTATION

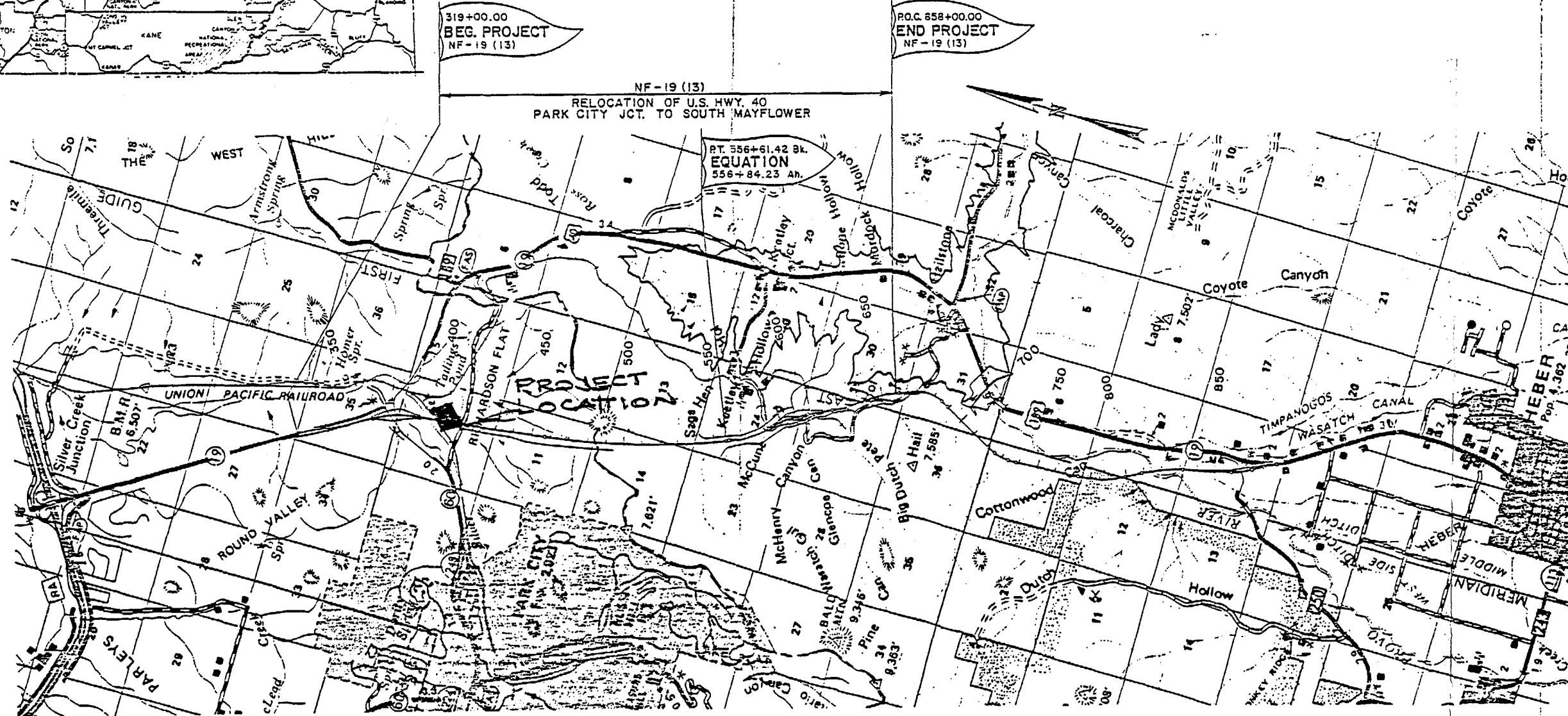
## PLANS OF PROPOSED STATE ROAD

NF-19 (13)  
RELOCATION OF U.S. HWY. 40  
PARK CITY JCT. TO SOUTH MAYFLOWER

**NF-19 (13)**  
RELOCATION OF U.S. HWY. 40  
PARK CITY JCT. TO SOUTH MAYFLOWER  
SUMMIT COUNTY AND WASATCH COUNTY  
GRADING, DRAINAGE, STRUCTURES  
AND SIGNING  
LENGTH 6.416 MILES

UTAH	PROJ. NO.	SHEET NO.
UTAH	NF-19 (13)	12

FOR INDEX TO SHEETS  
SEE SHEET NO. 1-A



UTAH DEPARTMENT OF TRANSPORTATION

RECOMMENDED FOR APPROVAL \_\_\_\_\_ 19

CHIEF, ROADWAY DESIGN

RECOMMENDED FOR APPROVAL \_\_\_\_\_ 19

ENGINEER FOR PRECONSTRUCTION

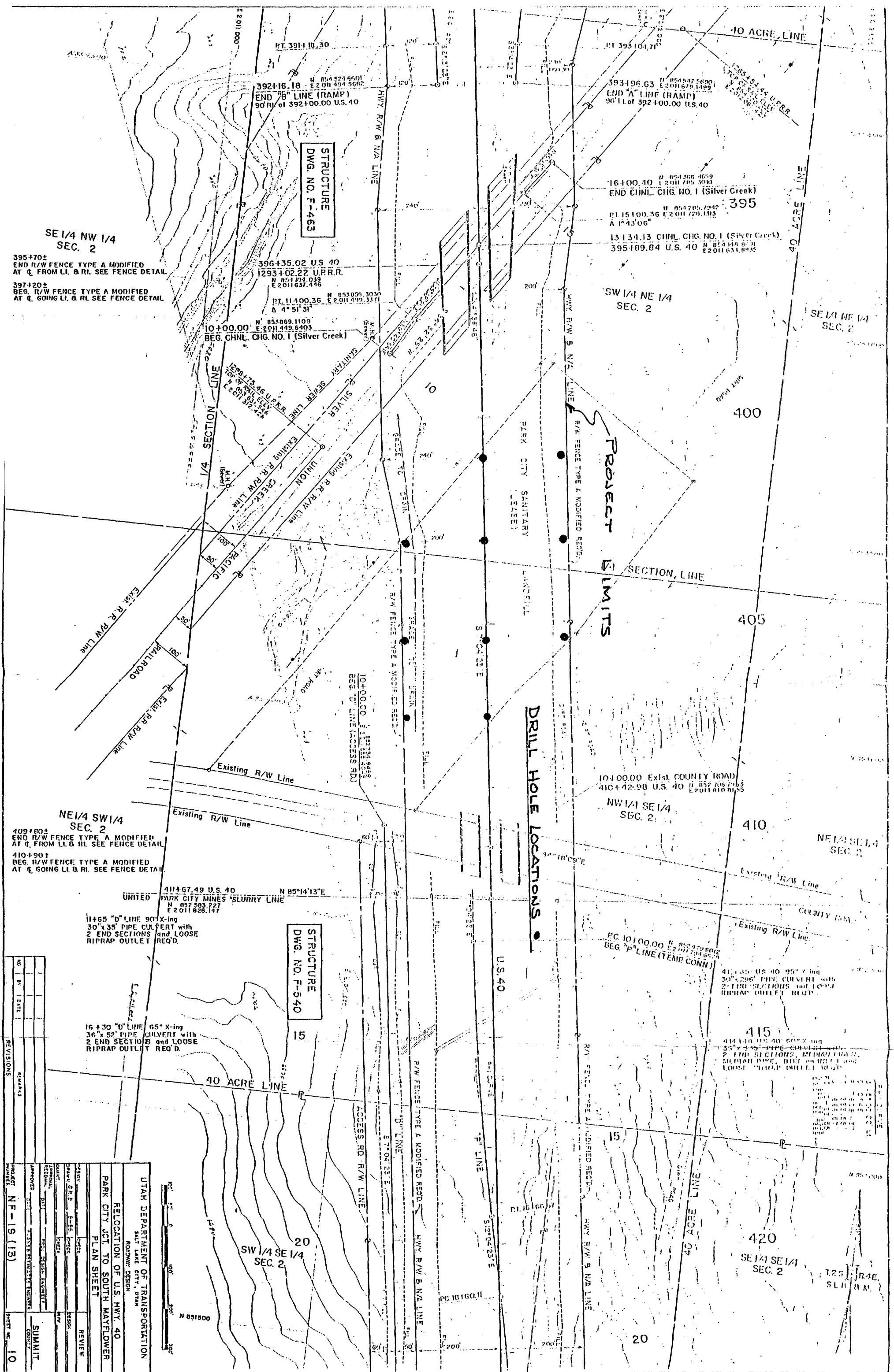
APPROVED \_\_\_\_\_ 19

ASSISTANT DIRECTOR

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF RECLAMATION

APPROVED

DIVISION ADMINISTRATOR DATE



QUESTION 17

List each insurance company or other person that provided casualty or pollution liability insurance coverage, including but not limited to any Comprehensive General Liability coverage, Environmental Impairment coverage, Insurance Services Office coverage, Umbrella coverage, or any other indemnification or defense agreement, that provides to you or any other person or entity identified in response to question 5 a right of indemnification or defense in any action involving hazardous substances. This question applies to policies or agreements that are or were in effect at any time to the present. Submit copies of all insurance policies or agreements identified.

RESPONSE

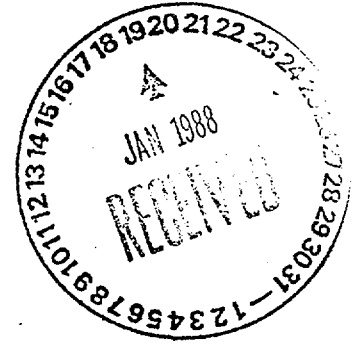
As of the date of this response, United Park City Mines Company has not completed a review of its insurance policies and applicable agreements. To the extent of the review thus far completed, it does not appear that the most recent of United Park City Mines Company's casualty insurance policies provide pollution, environmental impairment or "clean-up" coverage to itself or those entities identified in question 5. United Park City Mines Company will supplement this response, if appropriate, upon completion of its review.

United Park City Mines Company reserves the right to supplement this response as additional information and documents become available.



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RESPONSE

OF

UNITED PARK CITY MINES COMPANY

TO

QUESTIONS 10 THROUGH 19

OF

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY'S

NOVEMBER 23, 1987,

REQUEST FOR INFORMATION

Volume 2

Submitted: January 15, 1988

United Park City Mines Company reserves the right to supplement this response as additional information and documents become available.

**CONFIDENTIAL**